WILEY TRIGONOMETRIC TABLES

SECOND EDITION

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PREFACE TO THE SECOND EDITION

The First Edition of the *Wiley Trigonometric Tables* contained only six tables. To these, in the Second Edition, have been added four tables which relate to haversines and mils. The new tables were prepared with considerable care to make them as accurate and convenient as possible.

I am indebted to the War Department for use of Tables VIII and IX, with corrections of them up to August 10, 1942. These two tables, without the corrections referred to, appeared as Tables LIII and LIV, respectively, in Technical Manual 5–236 for 1940. For permission to use tables in essentially their same excellent forms I also acknowledge indebtedness to the Dryden Press, Inc., and Professor W. C. Brenke, publisher and author of *Plane and Spherical Trigonometry*, from which I used their Table IV, and to Henry Holt and Company and Professors C. Bell and T. Y. Thomas, publisher and authors of *Essentials of Plane and Spherical Trigonometry*, from which I used their Tables IV and VI.

H. A. SIMMONS

PREFACE TO FIRST EDITION

In assembling these tables, we have kept in mind three fundamental desiderata: to select those tables which are most appropriate in a trigonometry course; to make them as accurate as possible; and to arrange them in such order and in such type as to afford the maximum convenience to the user.

In addition to those customarily regarded as required in a trigonometry course, the Wiley Tables include tables of powers and roots to facilitate the solution of triangles without the use of logarithms; they include S and T tables for accurate computation with special angles; and they include a set of frequently used constants.

In the work of preparation, several errors in tables that have been widely used in this country were corrected. It is hoped that the Wiley Tables possess improved accuracy.

H. A. SIMMONS
G. D. GORE

TABLES

N	N^2	$\sqrt{N}$	$\sqrt{10N}$
1.00	1.0000	1.00000	3.16228
1.01	1.0201	1.00499	3.17805
1.02	1.0404	1.00995	3.19374
1.03	1.0609	1.01489	3.20936
1.04	1.0816	1.01980	3.22490
1.05	1.1025	1.02470	3.24037
1.06	1.1236	1.02956	3.25576
1.07	1.1449	1.03441	3.27109
1.08	1.1664	1.03923	3.28634
1.09	1.1881	1.04403	3.30151
1.10	1.2100	1.04881	3.31662
1.11	1.2321	1.05357	3.33167
1.12	1.2544	1.05830	3.34664
1.13	1.2769	1.06301	3.36155
1.14	1.2996	1.06771	3.37639
1.15	1.3225	1.07238	3.39116
1.16	1.3456	1.07703	3.40588
1.17	1.3689	1.08167	3.42053
1.18	1.3924	1.08628	3.43511
1.19	1.4161	1.09087	3.44964
1.20	1.4400	1.09545	3.46410
1.21	1.4641	1.10000	3.47851
1.22	1.4884	1.10454	3.49285
1.23	1.5129	1.10905	3.50714
1.24	1.5376	1.11355	3.52136
1.25	1.5625	1.11803	3.53553
1.26	1.5876	1.12250	3.54965
1.27	1.6129	1.12694	3.56371
1.28	1.6384	1.13137	3.57771
1.29	1.6641	1.13578	3.59166
1.30	1.6900	1.14018	3.60555
1.31	1.7161	1.14455	3.61939
1.32	1.7424	1.14891	3.63318
1.33	1.7689	1.15326	3.64692
1.34	1.7956	1.15758	3.66060
1.35	1.8225	1.16190	3.67423
1.36	1.8496	1.16619	3.68782
1.37	1.8769	1.17047	3.70135
1.38	1.9044	1.17473	3.71484
1.39	1.9321	1.17898	3.72827
1.40	1.9600	1.18322	3.74166
1.41	1.9881	1.18743	3.75500
1.42	2.0164	1.19164	3.76829
1.43	2.0449	1.19583	3.78153
1.44	2.0736	1.20000	3.79473
1.45	2.1025	1.20416	3.80789
1.46	2.1316	1.20830	3.82099
1.47	2.1609	1.21244	3.83406
1.48	2.1904	1.21655	3.84708
1.49	2.2201	1.22066	3.86005
1.50	2.2500	1.22474	3.87298
N	N^2	$\sqrt{N}$	$\sqrt{10N}$

N	N^2	$\sqrt{N}$	$\sqrt{10N}$
1.50	2.2500	1.22474	3.87298
1.51	2.2801	1.22882	3.88587
1.52	2.3104	1.23288	3.89872
1.53	2.3409	1.23693	3.91152
1.54	2.3716	1.24097	3.92428
1.55	2.4025	1.24499	3.93700
1.56	2.4336	1.24900	3.94968
1.57	2.4649	1.25300	3.96232
1.58	2.4964	1.25698	3.97492
1.59	2.5281	1.26095	3.98748
1.60	2.5600	1.26491	4.00000
1.61	2.5921	1.26886	4.01248
1.62	2.6244	1.27279	4.02492
1.63	2.6569	1.27671	4.03733
1.64	2.6896	1.28062	4.04969
1.65	2.7225	1.28452	4.06202
1.66	2.7556	1.28841	4.07431
1.67	2.7889	1.29228	4.08656
1.68	2.8224	1.29615	4.09878
1.69	2.8561	1.30000	4.11096
1.70	2.8900	1.30384	4.12311
1.71	2.9241	1.30767	4.13521
1.72	2.9584	1.31149	4.14729
1.73	2.9929	1.31529	4.15933
1.74	3.0276	1.31909	4.17133
1.75	3.0625	1.32288	4.18330
1.76	3.0976	1.32665	4.19524
1.77	3.1329	1.33041	4.20714
1.78	3.1684	1.33417	4.21900
1.79	3.2041	1.33791	4.23084
1.80	3.2400	1.34164	4.24264
1.81	3.2761	1.34536	4.25441
1.82	3.3124	1.34907	4.26615
1.83	3.3489	1.35277	4.27785
1.84	3.3856	1.35647	4.28952
1.85	3.4225	1.36015	4.30116
1.86	3.4596	1.36382	4.31277
1.87	3.4969	1.36748	4.32435
1.88	3.5344	1.37113	4.33590
1.89	3.5721	1.37477	4.34741
1.90	3.6100	1.37840	4.35890
1.91	3.6481	1.38203	4.37035
1.92	3.6864	1.38564	4.38178
1.93	3.7249	1.38924	4.39318
1.94	3.7636	1.39284	4.40454
1.95	3.8025	1.39642	4.41588
1.96	3.8416	1.40000	4.42719
1.97	3.8809	1.40357	4.43847
1.98	3.9204	1.40712	4.44972
1.99	3.9601	1.41067	4.46094
2.00	4.0000	1.41421	4.47214
N	N^2	$\sqrt{N}$	$\sqrt{10N}$

N	N²	√N	√10N
2.00	4.0000	1.41421	4.47214
2.01	4.0401	1.41774	4.48330
2.02	4.0804	1.42127	4.49444
2.03	4.1209	1.42478	4.50555
2.04	4.1616	1.42829	4.51664
2.05	4.2025	1.43178	4.52769
2.06	4.2436	1.43527	4.53872
2.07	4.2849	1.43875	4.54973
2.08	4.3264	1.44222	4.56070
2.09	4.3681	1.44568	4.57165
2.10	4.4100	1.44914	4.58258
2.11	4.4521	1.45258	4.59347
2.12	4.4944	1.45602	4.60435
2.13	4.5369	1.45945	4.61519
2.14	4.5796	1.46287	4.62601
2.15	4.6225	1.46629	4.63681
2.16	4.6656	1.46969	4.64758
2.17	4.7089	1.47309	4.65833
2.18	4.7524	1.47648	4.66905
2.19	4.7961	1.47986	4.67974
2.20	4.8400	1.48324	4.69042
2.21	4.8841	1.48661	4.70106
2.22	4.9284	1.48997	4.71169
2.23	4.9729	1.49332	4.72229
2.24	5.0176	1.49666	4.73286
2.25	5.0625	1.50000	4.74342
2.26	5.1076	1.50333	4.75395
2.27	5.1529	1.50665	4.76445
2.28	5.1984	1.50997	4.77493
2.29	5.2441	1.51327	4.78539
2.30	5.2900	1.51658	4.79583
2.31	5.3361	1.51987	4.80625
2.32	5.3824	1.52315	4.81664
2.33	5.4289	1.52643	4.82701
2.34	5.4756	1.52971	4.83735
2.35	5.5225	1.53297	4.84768
2.36	5.5696	1.53623	4.85798
2.37	5.6169	1.53948	4.86826
2.38	5.6644	1.54272	4.87852
2.39	5.7121	1.54596	4.88876
2.40	5.7600	1.54919	4.89898
2.41	5.8081	1.55242	4.90918
2.42	5.8564	1.55563	4.91935
2.43	5.9049	1.55885	4.92950
2.44	5.9536	1.56205	4.93964
2.45	6.0025	1.56525	4.94975
2.46	6.0516	1.56844	4.95984
2.47	6.1009	1.57162	4.96991
2.48	6.1504	1.57480	4.97996
2.49	6.2001	1.57797	4.98999
2.50	6.2500	1.58114	5.00000
N	N²	√N	√10N

N	N²	√N	√10N
2.50	6.2500	1.58114	5.00000
2.51	6.3001	1.58430	5.00999
2.52	6.3504	1.58745	5.01996
2.53	6.4009	1.59060	5.02991
2.54	6.4516	1.59374	5.03984
2.55	6.5025	1.59687	5.04975
2.56	6.5536	1.60000	5.05964
2.57	6.6049	1.60312	5.06952
2.58	6.6564	1.60624	5.07937
2.59	6.7081	1.60935	5.08920
2.60	6.7600	1.61245	5.09902
2.61	6.8121	1.61555	5.10882
2.62	6.8644	1.61864	5.11859
2.63	6.9169	1.62173	5.12835
2.64	6.9696	1.62481	5.13809
2.65	7.0225	1.62788	5.14782
2.66	7.0756	1.63095	5.15752
2.67	7.1289	1.63401	5.16720
2.68	7.1824	1.63707	5.17687
2.69	7.2361	1.64012	5.18652
2.70	7.2900	1.64317	5.19615
2.71	7.3441	1.64621	5.20577
2.72	7.3984	1.64924	5.21536
2.73	7.4529	1.65227	5.22494
2.74	7.5076	1.65529	5.23450
2.75	7.5625	1.65831	5.24404
2.76	7.6176	1.66132	5.25357
2.77	7.6729	1.66433	5.26308
2.78	7.7284	1.66733	5.27257
2.79	7.7841	1.67033	5.28205
2.80	7.8400	1.67332	5.29150
2.81	7.8961	1.67631	5.30094
2.82	7.9524	1.67929	5.31037
2.83	8.0089	1.68226	5.31977
2.84	8.0656	1.68523	5.32917
2.85	8.1225	1.68819	5.33854
2.86	8.1796	1.69115	5.34790
2.87	8.2369	1.69411	5.35724
2.88	8.2944	1.69706	5.36656
2.89	8.3521	1.70000	5.37587
2.90	8.4100	1.70294	5.38516
2.91	8.4681	1.70587	5.39444
2.92	8.5264	1.70880	5.40370
2.93	8.5849	1.71172	5.41295
2.94	8.6436	1.71464	5.42218
2.95	8.7025	1.71756	5.43139
2.96	8.7616	1.72047	5.44059
2.97	8.8209	1.72337	5.44977
2.98	8.8804	1.72627	5.45894
2.99	8.9401	1.72916	5.46809
3.00	9.0000	1.73205	5.47723
N	N²	√N	√10N

N	N²	√N	√10N
3.00	9.0000	1.73205	5.47723
3.01	9.0601	1.73494	5.48635
3.02	9.1204	1.73781	5.49545
3.03	9.1809	1.74069	5.50454
3.04	9.2416	1.74356	5.51362
3.05	9.3025	1.74642	5.52268
3.06	9.3636	1.74929	5.53173
3.07	9.4249	1.75214	5.54076
3.08	9.4864	1.75499	5.54977
3.09	9.5481	1.75784	5.55878
3.10	9.6100	1.76068	5.56776
3.11	9.6721	1.76352	5.57674
3.12	9.7344	1.76635	5.58570
3.13	9.7969	1.76918	5.59464
3.14	9.8596	1.77200	5.60357
3.15	9.9225	1.77482	5.61249
3.16	9.9856	1.77764	5.62139
3.17	10.0489	1.78045	5.63028
3.18	10.1124	1.78326	5.63915
3.19	10.1761	1.78606	5.64801
3.20	10.2400	1.78885	5.65685
3.21	10.3041	1.79165	5.66569
3.22	10.3684	1.79444	5.67450
3.23	10.4329	1.79722	5.68331
3.24	10.4976	1.80000	5.69210
3.25	10.5625	1.80278	5.70088
3.26	10.6276	1.80555	5.70964
3.27	10.6929	1.80831	5.71839
3.28	10.7584	1.81108	5.72713
3.29	10.8241	1.81384	5.73585
3.30	10.8900	1.81659	5.74456
3.31	10.9561	1.81934	5.75326
3.32	11.0224	1.82209	5.76194
3.33	11.0889	1.82483	5.77062
3.34	11.1556	1.82757	5.77927
3.35	11.2225	1.83030	5.78792
3.36	11.2896	1.83303	5.79655
3.37	11.3569	1.83576	5.80517
3.38	11.4244	1.83848	5.81378
3.39	11.4921	1.84120	5.82237
3.40	11.5600	1.84391	5.83095
3.41	11.6281	1.84662	5.83952
3.42	11.6964	1.84932	5.84808
3.43	11.7649	1.85203	5.85662
3.44	11.8336	1.85472	5.86515
3.45	11.9025	1.85742	5.87367
3.46	11.9716	1.86011	5.88218
3.47	12.0409	1.86279	5.89067
3.48	12.1104	1.86548	5.89915
3.49	12.1801	1.86815	5.90762
3.50	12.2500	1.87083	5.91608
N	N²	√N	√10N

N	N²	√N	√10N
3.50	12.2500	1.87083	5.91608
3.51	12.3201	1.87350	5.92453
3.52	12.3904	1.87617	5.93296
3.53	12.4609	1.87883	5.94138
3.54	12.5316	1.88149	5.94979
3.55	12.6025	1.88414	5.95819
3.56	12.6736	1.88680	5.96657
3.57	12.7449	1.88944	5.97495
3.58	12.8164	1.89209	5.98331
3.59	12.8881	1.89473	5.99166
3.60	12.9600	1.89737	6.00000
3.61	13.0321	1.90000	6.00833
3.62	13.1044	1.90263	6.01664
3.63	13.1769	1.90526	6.02495
3.64	13.2496	1.90788	6.03324
3.65	13.3225	1.91050	6.04152
3.66	13.3956	1.91311	6.04979
3.67	13.4689	1.91572	6.05805
3.68	13.5424	1.91833	6.06630
3.69	13.6161	1.92094	6.07454
3.70	13.6900	1.92354	6.08276
3.71	13.7641	1.92614	6.09098
3.72	13.8384	1.92873	6.09918
3.73	13.9129	1.93132	6.10737
3.74	13.9876	1.93391	6.11555
3.75	14.0625	1.93649	6.12372
3.76	14.1376	1.93907	6.13188
3.77	14.2129	1.94165	6.14003
3.78	14.2884	1.94422	6.14817
3.79	14.3641	1.94679	6.15630
3.80	14.4400	1.94936	6.16441
3.81	14.5161	1.95192	6.17252
3.82	14.5924	1.95448	6.18061
3.83	14.6689	1.95704	6.18870
3.84	14.7456	1.95959	6.19677
3.85	14.8225	1.96214	6.20484
3.86	14.8996	1.96469	6.21289
3.87	14.9769	1.96723	6.22093
3.88	15.0544	1.96977	6.22896
3.89	15.1321	1.97231	6.23699
3.90	15.2100	1.97484	6.24500
3.91	15.2881	1.97737	6.25300
3.92	15.3664	1.97990	6.26099
3.93	15.4449	1.98242	6.26897
3.94	15.5236	1.98494	6.27694
3.95	15.6025	1.98746	6.28490
3.96	15.6816	1.98997	6.29285
3.97	15.7609	1.99249	6.30079
3.98	15.8404	1.99499	6.30872
3.99	15.9201	1.99750	6.31664
4.00	16.0000	2.00000	6.32456
N	N²	√N	√10N

N	N²	√N	√10N
4.00	16.0000	2.00000	6.32456
4.01	16.0801	2.00250	6.33246
4.02	16.1604	2.00499	6.34035
4.03	16.2409	2.00749	6.34823
4.04	16.3216	2.00998	6.35610
4.05	16.4025	2.01246	6.36396
4.06	16.4836	2.01494	6.37181
4.07	16.5649	2.01742	6.37966
4.08	16.6464	2.01990	6.38749
4.09	16.7281	2.02237	6.39531
4.10	16.8100	2.02485	6.40312
4.11	16.8921	2.02731	6.41093
4.12	16.9744	2.02978	6.41872
4.13	17.0569	2.03224	6.42651
4.14	17.1396	2.03470	6.43428
4.15	17.2225	2.03715	6.44205
4.16	17.3056	2.03961	6.44981
4.17	17.3889	2.04206	6.45755
4.18	17.4724	2.04450	6.46529
4.19	17.5561	2.04695	6.47302
4.20	17.6400	2.04939	6.48074
4.21	17.7241	2.05183	6.48845
4.22	17.8084	2.05426	6.49615
4.23	17.8929	2.05670	6.50384
4.24	17.9776	2.05913	6.51153
4.25	18.0625	2.06155	6.51920
4.26	18.1476	2.06398	6.52687
4.27	18.2329	2.06640	6.53452
4.28	18.3184	2.06882	6.54217
4.29	18.4041	2.07123	6.54981
4.30	18.4900	2.07364	6.55744
4.31	18.5761	2.07605	6.56506
4.32	18.6624	2.07846	6.57267
4.33	18.7489	2.08087	6.58027
4.34	18.8356	2.08327	6.58787
4.35	18.9225	2.08567	6.59545
4.36	19.0096	2.08806	6.60303
4.37	19.0969	2.09045	6.61060
4.38	19.1844	2.09284	6.61816
4.39	19.2721	2.09523	6.62571
4.40	19.3600	2.09762	6.63325
4.41	19.4481	2.10000	6.64078
4.42	19.5364	2.10238	6.64831
4.43	19.6249	2.10476	6.65582
4.44	19.7136	2.10713	6.66333
4.45	19.8025	2.10950	6.67083
4.46	19.8916	2.11187	6.67832
4.47	19.9809	2.11424	6.68581
4.48	20.0704	2.11660	6.69328
4.49	20.1601	2.11896	6.70075
4.50	20.2500	2.12132	6.70820
N	N²	√N	√10N

N	N²	√N	√10N
4.50	20.2500	2.12132	6.70820
4.51	20.3401	2.12368	6.71565
4.52	20.4304	2.12603	6.72309
4.53	20.5209	2.12838	6.73053
4.54	20.6116	2.13073	6.73795
4.55	20.7025	2.13307	6.74537
4.56	20.7936	2.13542	6.75278
4.57	20.8849	2.13776	6.76018
4.58	20.9764	2.14009	6.76757
4.59	21.0681	2.14243	6.77495
4.60	21.1600	2.14476	6.78233
4.61	21.2521	2.14709	6.78970
4.62	21.3444	2.14942	6.79706
4.63	21.4369	2.15174	6.80441
4.64	21.5296	2.15407	6.81175
4.65	21.6225	2.15639	6.81909
4.66	21.7156	2.15870	6.82642
4.67	21.8089	2.16102	6.83374
4.68	21.9024	2.16333	6.84105
4.69	21.9961	2.16564	6.84836
4.70	22.0900	2.16795	6.85565
4.71	22.1841	2.17025	6.86294
4.72	22.2784	2.17256	6.87023
4.73	22.3729	2.17486	6.87750
4.74	22.4676	2.17715	6.88477
4.75	22.5625	2.17945	6.89202
4.76	22.6576	2.18174	6.89928
4.77	22.7529	2.18403	6.90652
4.78	22.8484	2.18632	6.91375
4.79	22.9441	2.18861	6.92098
4.80	23.0400	2.19089	6.92820
4.81	23.1361	2.19317	6.93542
4.82	23.2324	2.19545	6.94262
4.83	23.3289	2.19773	6.94982
4.84	23.4256	2.20000	6.95701
4.85	23.5225	2.20227	6.96419
4.86	23.6196	2.20454	6.97137
4.87	23.7169	2.20681	6.97854
4.88	23.8144	2.20907	6.98570
4.89	23.9121	2.21133	6.99285
4.90	24.0100	2.21359	7.00000
4.91	24.1081	2.21585	7.00714
4.92	24.2064	2.21811	7.01427
4.93	24.3049	2.22036	7.02140
4.94	24.4036	2.22261	7.02851
4.95	24.5025	2.22486	7.03562
4.96	24.6016	2.22711	7.04273
4.97	24.7009	2.22935	7.04982
4.98	24.8004	2.23159	7.05691
4.99	24.9001	2.23383	7.06399
5.00	25.0000	2.23607	7.07107
N	N²	√N	√10N

N	N²	√N	√10N
5.00	25.0000	2.23607	7.07107
5.01	25.1001	2.23830	7.07814
5.02	25.2004	2.24054	7.08520
5.03	25.3009	2.24277	7.09225
5.04	25.4016	2.24499	7.09930
5.05	25.5025	2.24722	7.10634
5.06	25.6036	2.24944	7.11337
5.07	25.7049	2.25167	7.12039
5.08	25.8064	2.25389	7.12741
5.09	25.9081	2.25610	7.13442
5.10	26.0100	2.25832	7.14143
5.11	26.1121	2.26053	7.14843
5.12	26.2144	2.26274	7.15542
5.13	26.3169	2.26495	7.16240
5.14	26.4196	2.26716	7.16938
5.15	26.5225	2.26936	7.17635
5.16	26.6256	2.27156	7.18331
5.17	26.7289	2.27376	7.19027
5.18	26.8324	2.27596	7.19722
5.19	26.9361	2.27816	7.20417
5.20	27.0400	2.28035	7.21110
5.21	27.1441	2.28254	7.21803
5.22	27.2484	2.28473	7.22496
5.23	27.3529	2.28692	7.23187
5.24	27.4576	2.28910	7.23878
5.25	27.5625	2.29129	7.24569
5.26	27.6676	2.29347	7.25259
5.27	27.7729	2.29565	7.25948
5.28	27.8784	2.29783	7.26636
5.29	27.9841	2.30000	7.27324
5.30	28.0900	2.30217	7.28011
5.31	28.1961	2.30434	7.28697
5.32	28.3024	2.30651	7.29383
5.33	28.4089	2.30868	7.30068
5.34	28.5156	2.31084	7.30753
5.35	28.6225	2.31301	7.31437
5.36	28.7296	2.31517	7.32120
5.37	28.8369	2.31733	7.32803
5.38	28.9444	2.31948	7.33485
5.39	29.0521	2.32164	7.34166
5.40	29.1600	2.32379	7.34847
5.41	29.2681	2.32594	7.35527
5.42	29.3764	2.32809	7.36206
5.43	29.4849	2.33024	7.36885
5.44	29.5936	2.33238	7.37564
5.45	29.7025	2.33452	7.38241
5.46	29.8116	2.33666	7.38918
5.47	29.9209	2.33880	7.39594
5.48	30.0304	2.34094	7.40270
5.49	30.1401	2.34307	7.40945
5.50	30.2500	2.34521	7.41620
N	**N²**	**√N**	**√10N**

N	N²	√N	√10N
5.50	30.2500	2.34521	7.41620
5.51	30.3601	2.34734	7.42294
5.52	30.4704	2.34947	7.42967
5.53	30.5809	2.35160	7.43640
5.54	30.6916	2.35372	7.44312
5.55	30.8025	2.35584	7.44983
5.56	30.9136	2.35797	7.45654
5.57	31.0249	2.36008	7.46324
5.58	31.1364	2.36220	7.46994
5.59	31.2481	2.36432	7.47663
5.60	31.3600	2.36643	7.48331
5.61	31.4721	2.36854	7.48999
5.62	31.5844	2.37065	7.49667
5.63	31.6969	2.37276	7.50333
5.64	31.8096	2.37487	7.50999
5.65	31.9225	2.37697	7.51665
5.66	32.0356	2.37908	7.52330
5.67	32.1489	2.38118	7.52994
5.68	32.2624	2.38328	7.53658
5.69	32.3761	2.38537	7.54321
5.70	32.4900	2.38747	7.54983
5.71	32.6041	2.38956	7.55645
5.72	32.7184	2.39165	7.56307
5.73	32.8329	2.39374	7.56968
5.74	32.9476	2.39583	7.57628
5.75	33.0625	2.39792	7.58288
5.76	33.1776	2.40000	7.58947
5.77	33.2929	2.40208	7.59605
5.78	33.4084	2.40416	7.60263
5.79	33.5241	2.40624	7.60920
5.80	33.6400	2.40832	7.61577
5.81	33.7561	2.41039	7.62234
5.82	33.8724	2.41247	7.62889
5.83	33.9889	2.41454	7.63544
5.84	34.1056	2.41661	7.64199
5.85	34.2225	2.41868	7.64853
5.86	34.3396	2.42074	7.65506
5.87	34.4569	2.42281	7.66159
5.88	34.5744	2.42487	7.66812
5.89	34.6921	2.42693	7.67463
5.90	34.8100	2.42899	7.68115
5.91	34.9281	2.43105	7.68765
5.92	35.0464	2.43311	7.69415
5.93	35.1649	2.43516	7.70065
5.94	35.2836	2.43721	7.70714
5.95	35.4025	2.43926	7.71362
5.96	35.5216	2.44131	7.72010
5.97	35.6409	2.44336	7.72658
5.98	35.7604	2.44540	7.73305
5.99	35.8801	2.44745	7.73951
6.00	36.0000	2.44949	7.74597
N	**N²**	**√N**	**√10N**

N	N²	√N	√10N
6.00	36.0000	2.44949	7.74597
6.01	36.1201	2.45153	7.75242
6.02	36.2404	2.45357	7.75887
6.03	36.3609	2.45561	7.76531
6.04	36.4816	2.45764	7.77174
6.05	36.6025	2.45967	7.77817
6.06	36.7236	2.46171	7.78460
6.07	36.8449	2.46374	7.79102
6.08	36.9664	2.46577	7.79744
6.09	37.0881	2.46779	7.80385
6.10	37.2100	2.46982	7.81025
6.11	37.3321	2.47184	7.81665
6.12	37.4544	2.47386	7.82304
6.13	37.5769	2.47588	7.82943
6.14	37.6996	2.47790	7.83582
6.15	37.8225	2.47992	7.84219
6.16	37.9456	2.48193	7.84857
6.17	38.0689	2.48395	7.85493
6.18	38.1924	2.48596	7.86130
6.19	38.3161	2.48797	7.86766
6.20	38.4400	2.48998	7.87401
6.21	38.5641	2.49199	7.88036
6.22	38.6884	2.49399	7.88670
6.23	38.8129	2.49600	7.89303
6.24	38.9376	2.49800	7.89937
6.25	39.0625	2.50000	7.90569
6.26	39.1876	2.50200	7.91202
6.27	39.3129	2.50400	7.91833
6.28	39.4384	2.50599	7.92465
6.29	39.5641	2.50799	7.93095
6.30	39.6900	2.50998	7.93725
6.31	39.8161	2.51197	7.94355
6.32	39.9424	2.51396	7.94984
6.33	40.0689	2.51595	7.95613
6.34	40.1956	2.51794	7.96241
6.35	40.3225	2.51992	7.96869
6.36	40.4496	2.52190	7.97496
6.37	40.5769	2.52389	7.98123
6.38	40.7044	2.52587	7.98749
6.39	40.8321	2.52784	7.99375
6.40	40.9600	2.52982	8.00000
6.41	41.0881	2.53180	8.00625
6.42	41.2164	2.53377	8.01249
6.43	41.3449	2.53574	8.01873
6.44	41.4736	2.53772	8.02496
6.45	41.6025	2.53969	8.03119
6.46	41.7316	2.54165	8.03741
6.47	41.8609	2.54362	8.04363
6.48	41.9904	2.54558	8.04984
6.49	42.1201	2.54755	8.05605
6.50	42.2500	2.54951	8.06226
N	N²	√N	√10N

N	N²	√N	√10N
6.50	42.2500	2.54951	8.06226
6.51	42.3801	2.55147	8.06846
6.52	42.5104	2.55343	8.07465
6.53	42.6409	2.55539	8.08084
6.54	42.7716	2.55734	8.08703
6.55	42.9025	2.55930	8.09321
6.56	43.0336	2.56125	8.09938
6.57	43.1649	2.56320	8.10555
6.58	43.2964	2.56515	8.11172
6.59	43.4281	2.56710	8.11788
6.60	43.5600	2.56905	8.12404
6.61	43.6921	2.57099	8.13019
6.62	43.8244	2.57294	8.13634
6.63	43.9569	2.57488	8.14248
6.64	44.0896	2.57682	8.14862
6.65	44.2225	2.57876	8.15475
6.66	44.3556	2.58070	8.16088
6.67	44.4889	2.58263	8.16701
6.68	44.6224	2.58457	8.17313
6.69	44.7561	2.58650	8.17924
6.70	44.8900	2.58844	8.18535
6.71	45.0241	2.59037	8.19146
6.72	45.1584	2.59230	8.19756
6.73	45.2929	2.59422	8.20366
6.74	45.4276	2.59615	8.20975
6.75	45.5625	2.59808	8.21584
6.76	45.6976	2.60000	8.22192
6.77	45.8329	2.60192	8.22800
6.78	45.9684	2.60384	8.23408
6.79	46.1041	2.60576	8.24015
6.80	46.2400	2.60768	8.24621
6.81	46.3761	2.60960	8.25227
6.82	46.5124	2.61151	8.25833
6.83	46.6489	2.61343	8.26438
6.84	46.7856	2.61534	8.27043
6.85	46.9225	2.61725	8.27647
6.86	47.0596	2.61916	8.28251
6.87	47.1969	2.62107	8.28855
6.88	47.3344	2.62298	8.29458
6.89	47.4721	2.62488	8.30060
6.90	47.6100	2.62679	8.30662
6.91	47.7481	2.62869	8.31264
6.92	47.8864	2.63059	8.31865
6.93	48.0249	2.63249	8.32466
6.94	48.1636	2.63439	8.33067
6.95	48.3025	2.63629	8.33667
6.96	48.4416	2.63818	8.34266
6.97	48.5809	2.64008	8.34865
6.98	48.7204	2.64197	8.35464
6.99	48.8601	2.64386	8.36062
7.00	49.0000	2.64575	8.36660
N	N²	√N	√10N

N	N²	√N	√10N
7.00	49.0000	2.64575	8.36660
7.01	49.1401	2.64764	8.37257
7.02	49.2804	2.64953	8.37854
7.03	49.4209	2.65141	8.38451
7.04	49.5616	2.65330	8.39047
7.05	49.7025	2.65518	8.39643
7.06	49.8436	2.65707	8.40238
7.07	49.9849	2.65895	8.40833
7.08	50.1264	2.66083	8.41427
7.09	50.2681	2.66271	8.42021
7.10	50.4100	2.66458	8.42615
7.11	50.5521	2.66646	8.43208
7.12	50.6944	2.66833	8.43801
7.13	50.8369	2.67021	8.44393
7.14	50.9796	2.67208	8.44985
7.15	51.1225	2.67395	8.45577
7.16	51.2656	2.67582	8.46168
7.17	51.4089	2.67769	8.46759
7.18	51.5524	2.67955	8.47349
7.19	51.6961	2.68142	8.47939
7.20	51.8400	2.68328	8.48528
7.21	51.9841	2.68514	8.49117
7.22	52.1284	2.68701	8.49706
7.23	52.2729	2.68887	8.50294
7.24	52.4176	2.69072	8.50882
7.25	52.5625	2.69258	8.51469
7.26	52.7076	2.69444	8.52056
7.27	52.8529	2.69629	8.52643
7.28	52.9984	2.69815	8.53229
7.29	53.1441	2.70000	8.53815
7.30	53.2900	2.70185	8.54400
7.31	53.4361	2.70370	8.54985
7.32	53.5824	2.70555	8.55570
7.33	53.7289	2.70740	8.56154
7.34	53.8756	2.70924	8.56738
7.35	54.0225	2.71109	8.57321
7.36	54.1696	2.71293	8.57904
7.37	54.3169	2.71477	8.58487
7.38	54.4644	2.71662	8.59069
7.39	54.6121	2.71846	8.59651
7.40	54.7600	2.72029	8.60233
7.41	54.9081	2.72213	8.60814
7.42	55.0564	2.72397	8.61394
7.43	55.2049	2.72580	8.61974
7.44	55.3536	2.72764	8.62554
7.45	55.5025	2.72947	8.63134
7.46	55.6516	2.73130	8.63713
7.47	55.8009	2.73313	8.64292
7.48	55.9504	2.73496	8.64870
7.49	56.1001	2.73679	8.65448
7.50	56.2500	2.73861	8.66025
N	N²	√N	√10N

N	N²	√N	√10N
7.50	56.2500	2.73861	8.66025
7.51	56.4001	2.74044	8.66603
7.52	56.5504	2.74226	8.67179
7.53	56.7009	2.74408	8.67756
7.54	56.8516	2.74591	8.68332
7.55	57.0025	2.74773	8.68907
7.56	57.1536	2.74955	8.69483
7.57	57.3049	2.75136	8.70057
7.58	57.4564	2.75318	8.70632
7.59	57.6081	2.75500	8.71206
7.60	57.7600	2.75681	8.71780
7.61	57.9121	2.75862	8.72353
7.62	58.0644	2.76043	8.72926
7.63	58.2169	2.76225	8.73499
7.64	58.3696	2.76405	8.74071
7.65	58.5225	2.76586	8.74643
7.66	58.6756	2.76767	8.75214
7.67	58.8289	2.76948	8.75785
7.68	58.9824	2.77128	8.76356
7.69	59.1361	2.77308	8.76926
7.70	59.2900	2.77489	8.77496
7.71	59.4441	2.77669	8.78066
7.72	59.5984	2.77849	8.78635
7.73	59.7529	2.78029	8.79204
7.74	59.9076	2.78209	8.79773
7.75	60.0625	2.78388	8.80341
7.76	60.2176	2.78568	8.80909
7.77	60.3729	2.78747	8.81476
7.78	60.5284	2.78927	8.82043
7.79	60.6841	2.79106	8.82610
7.80	60.8400	2.79285	8.83176
7.81	60.9961	2.79464	8.83742
7.82	61.1524	2.79643	8.84308
7.83	61.3089	2.79821	8.84873
7.84	61.4656	2.80000	8.85438
7.85	61.6225	2.80179	8.86002
7.86	61.7796	2.80357	8.86566
7.87	61.9369	2.80535	8.87130
7.88	62.0944	2.80713	8.87694
7.89	62.2521	2.80891	8.88257
7.90	62.4100	2.81069	8.88819
7.91	62.5681	2.81247	8.89382
7.92	62.7264	2.81425	8.89944
7.93	62.8849	2.81603	8.90505
7.94	63.0436	2.81780	8.91067
7.95	63.2025	2.81957	8.91628
7.96	63.3616	2.82135	8.92188
7.97	63.5209	2.82312	8.92749
7.98	63.6804	2.82489	8.93308
7.99	63.8401	2.82666	8.93868
8.00	64.0000	2.82843	8.94427
N	N²	√N	√10N

N	N²	√N	√10N
8.00	64.0000	2.82843	8.94427
8.01	64.1601	2.83019	8.94986
8.02	64.3204	2.83196	8.95545
8.03	64.4809	2.83373	8.96103
8.04	64.6416	2.83549	8.96660
8.05	64.8025	2.83725	8.97218
8.06	64.9636	2.83901	8.97775
8.07	65.1249	2.84077	8.98332
8.08	65.2864	2.84253	8.98888
8.09	65.4481	2.84429	8.99444
8.10	65.6100	2.84605	9.00000
8.11	65.7721	2.84781	9.00555
8.12	65.9344	2.84956	9.01110
8.13	66.0969	2.85132	9.01665
8.14	66.2596	2.85307	9.02219
8.15	66.4225	2.85482	9.02774
8.16	66.5856	2.85657	9.03327
8.17	66.7489	2.85832	9.03881
8.18	66.9124	2.86007	9.04434
8.19	67.0761	2.86182	9.04986
8.20	67.2400	2.86356	9.05539
8.21	67.4041	2.86531	9.06091
8.22	67.5684	2.86705	9.06642
8.23	67.7329	2.86880	9.07193
8.24	67.8976	2.87054	9.07744
8.25	68.0625	2.87228	9.08295
8.26	68.2276	2.87402	9.08845
8.27	68.3929	2.87576	9.09395
8.28	68.5584	2.87750	9.09945
8.29	68.7241	2.87924	9.10494
8.30	68.8900	2.88097	9.11043
8.31	69.0561	2.88271	9.11592
8.32	69.2224	2.88444	9.12140
8.33	69.3889	2.88617	9.12688
8.34	69.5556	2.88791	9.13236
8.35	69.7225	2.88964	9.13783
8.36	69.8896	2.89137	9.14330
8.37	70.0569	2.89310	9.14877
8.38	70.2244	2.89482	9.15423
8.39	70.3921	2.89655	9.15969
8.40	70.5600	2.89828	9.16515
8.41	70.7281	2.90000	9.17061
8.42	70.8964	2.90172	9.17606
8.43	71.0649	2.90345	9.18150
8.44	71.2336	2.90517	9.18695
8.45	71.4025	2.90689	9.19239
8.46	71.5716	2.90861	9.19783
8.47	71.7409	2.91033	9.20326
8.48	71.9104	2.91204	9.20869
8.49	72.0801	2.91376	9.21412
8.50	72.2500	2.91548	9.21954
N	N²	√N	√10N

N	N²	√N	√10N
8.50	72.2500	2.91548	9.21954
8.51	72.4201	2.91719	9.22497
8.52	72.5904	2.91890	9.23038
8.53	72.7609	2.92062	9.23580
8.54	72.9316	2.92233	9.24121
8.55	73.1025	2.92404	9.24662
8.56	73.2736	2.92575	9.25203
8.57	73.4449	2.92746	9.25743
8.58	73.6164	2.92916	9.26283
8.59	73.7881	2.93087	9.26823
8.60	73.9600	2.93258	9.27362
8.61	74.1321	2.93428	9.27901
8.62	74.3044	2.93598	9.28440
8.63	74.4769	2.93769	9.28978
8.64	74.6496	2.93939	9.29516
8.65	74.8225	2.94109	9.30054
8.66	74.9956	2.94279	9.30591
8.67	75.1689	2.94449	9.31128
8.68	75.3424	2.94618	9.31665
8.69	75.5161	2.94788	9.32202
8.70	75.6900	2.94958	9.32738
8.71	75.8641	2.95127	9.33274
8.72	76.0384	2.95296	9.33809
8.73	76.2129	2.95466	9.34345
8.74	76.3876	2.95635	9.34880
8.75	76.5625	2.95804	9.35414
8.76	76.7376	2.95973	9.35949
8.77	76.9129	2.96142	9.36483
8.78	77.0884	2.96311	9.37017
8.79	77.2641	2.96479	9.37550
8.80	77.4400	2.96648	9.38083
8.81	77.6161	2.96816	9.38616
8.82	77.7924	2.96985	9.39149
8.83	77.9689	2.97153	9.39681
8.84	78.1456	2.97321	9.40213
8.85	78.3225	2.97489	9.40744
8.86	78.4996	2.97658	9.41276
8.87	78.6769	2.97825	9.41807
8.88	78.8544	2.97993	9.42338
8.89	79.0321	2.98161	9.42868
8.90	79.2100	2.98329	9.43398
8.91	79.3881	2.98496	9.43928
8.92	79.5664	2.98664	9.44458
8.93	79.7449	2.98831	9.44987
8.94	79.9236	2.98998	9.45516
8.95	80.1025	2.99166	9.46044
8.96	80.2816	2.99333	9.46573
8.97	80.4609	2.99500	9.47101
8.98	80.6404	2.99666	9.47629
8.99	80.8201	2.99833	9.48156
9.00	81.0000	3.00000	9.48683
N	N²	√N	√10N

N	N²	√N	√10N
9.00	81.0000	3.00000	9.48683
9.01	81.1801	3.00167	9.49210
9.02	81.3604	3.00333	9.49737
9.03	81.5409	3.00500	9.50263
9.04	81.7216	3.00666	9.50789
9.05	81.9025	3.00832	9.51315
9.06	82.0836	3.00998	9.51840
9.07	82.2649	3.01164	9.52365
9.08	82.4464	3.01330	9.52890
9.09	82.6281	3.01496	9.53415
9.10	82.8100	3.01662	9.53939
9.11	82.9921	3.01828	9.54463
9.12	83.1744	3.01993	9.54987
9.13	83.3569	3.02159	9.55510
9.14	83.5396	3.02324	9.56033
9.15	83.7225	3.02490	9.56556
9.16	83.9056	3.02655	9.57079
9.17	84.0889	3.02820	9.57601
9.18	84.2724	3.02985	9.58123
9.19	84.4561	3.03150	9.58645
9.20	84.6400	3.03315	9.59166
9.21	84.8241	3.03480	9.59687
9.22	85.0084	3.03645	9.60208
9.23	85.1929	3.03809	9.60729
9.24	85.3776	3.03974	9.61249
9.25	85.5625	3.04138	9.61769
9.26	85.7476	3.04302	9.62289
9.27	85.9329	3.04467	9.62808
9.28	86.1184	3.04631	9.63328
9.29	86.3041	3.04795	9.63846
9.30	86.4900	3.04959	9.64365
9.31	86.6761	3.05123	9.64883
9.32	86.8624	3.05287	9.65401
9.33	87.0489	3.05450	9.65919
9.34	87.2356	3.05614	9.66437
9.35	87.4225	3.05778	9.66954
9.36	87.6096	3.05941	9.67471
9.37	87.7969	3.06105	9.67988
9.38	87.9844	3.06268	9.68504
9.39	88.1721	3.06431	9.69020
9.40	88.3600	3.06594	9.69536
9.41	88.5481	3.06757	9.70052
9.42	88.7364	3.06920	9.70567
9.43	88.9249	3.07083	9.71082
9.44	89.1136	3.07246	9.71597
9.45	89.3025	3.07409	9.72111
9.46	89.4916	3.07571	9.72625
9.47	89.6809	3.07734	9.73139
9.48	89.8704	3.07896	9.73653
9.49	90.0601	3.08058	9.74166
9.50	90.2500	3.08221	9.74679
N	N²	√N	√10N

N	N²	√N	√10N
9.50	90.2500	3.08221	9.74679
9.51	90.4401	3.08383	9.75192
9.52	90.6304	3.08545	9.75705
9.53	90.8209	3.08707	9.76217
9.54	91.0116	3.08869	9.76729
9.55	91.2025	3.09031	9.77241
9.56	91.3936	3.09192	9.77753
9.57	91.5849	3.09354	9.78264
9.58	91.7764	3.09516	9.78775
9.59	91.9681	3.09677	9.79285
9.60	92.1600	3.09839	9.79796
9.61	92.3521	3.10000	9.80306
9.62	92.5444	3.10161	9.80816
9.63	92.7369	3.10322	9.81326
9.64	92.9296	3.10483	9.81835
9.65	93.1225	3.10644	9.82344
9.66	93.3156	3.10805	9.82853
9.67	93.5089	3.10966	9.83362
9.68	93.7024	3.11127	9.83870
9.69	93.8961	3.11288	9.84378
9.70	94.0900	3.11448	9.84886
9.71	94.2841	3.11609	9.85393
9.72	94.4784	3.11769	9.85901
9.73	94.6729	3.11929	9.86408
9.74	94.8676	3.12090	9.86914
9.75	95.0625	3.12250	9.87421
9.76	95.2576	3.12410	9.87927
9.77	95.4529	3.12570	9.88433
9.78	95.6484	3.12730	9.88939
9.79	95.8441	3.12890	9.89444
9.80	96.0400	3.13050	9.89949
9.81	96.2361	3.13209	9.90454
9.82	96.4324	3.13369	9.90959
9.83	96.6289	3.13528	9.91464
9.84	96.8256	3.13688	9.91968
9.85	97.0225	3.13847	9.92472
9.86	97.2196	3.14006	9.92975
9.87	97.4169	3.14166	9.93479
9.88	97.6144	3.14325	9.93982
9.89	97.8121	3.14484	9.94485
9.90	98.0100	3.14643	9.94987
9.91	98.2081	3.14802	9.95490
9.92	98.4064	3.14960	9.95992
9.93	98.6049	3.15119	9.96494
9.94	98.8036	3.15278	9.96995
9.95	99.0025	3.15436	9.97497
9.96	99.2016	3.15595	9.97998
9.97	99.4009	3.15753	9.98499
9.98	99.6004	3.15911	9.98999
9.99	99.8001	3.16070	9.99500
10.00	100.000	3.16228	10.0000
N	N²	√N	√10N

	Number	Logarithm
Base of Naperian logarithms	e = 2.71828183	0.4342945
Modulus of common logs., $\log_{10} e$ =	u = 0.43429448	9.6377843–10
Reciprocal of modulus	$\frac{1}{u}$ = 2.30258509	.3622157
Circumference of a circle in degrees . .	= 360	2.5563025
Circumference of a circle in minutes . .	= 21600	4.3344538
Circumference of a circle in seconds . .	= 1296000	6.1126050
Radian expressed in degrees	= 57.29578	1.7581226
Radian expressed in minutes	= 3437.7468	3.5362739
Radian expressed in seconds	= 206264.806	5.3144251
Ratio of a circumference to diameter . .	π = 3.14159265	0.4971499
π = 3.14159 26535 89793 23846 26433 8328	g = 981	2.9916690

Number	Logarithm	Number	Logarithm
2π = 6.28318531	0.7981799	π^2 = 9.86960440	0.9942997
4π = 12.56637061	1.0992099	$\frac{1}{\pi^2}$ = 0.10132118	9.0057003–10
$\frac{\pi}{2}$ = 1.57079633	0.1961199	$\sqrt{\pi}$ = 1.77245385	0.2485749
$\frac{\pi}{3}$ = 1.04719755	0.0200286	$\frac{1}{\sqrt{\pi}}$ = 0.56418958	9.7514251–10
$\frac{4\pi}{3}$ = 4.18879020	0.6220886	$\sqrt{\frac{3}{\pi}}$ = 0.97720502	9.9899857–10
$\frac{\pi}{4}$ = 0.78539816	9.8950899–10	$\sqrt{\frac{4}{\pi}}$ = 1.12837917	0.0524551
$\frac{\pi}{6}$ = 0.52359878	9.7189986–10	$\sqrt[3]{\pi}$ = 1.46459189	0.1657166
$\frac{1}{\pi}$ = 0.31830989	9.5028501–10	$\frac{1}{\sqrt[3]{\pi}}$ = 0.68278406	9.8342834–10
$\frac{1}{2\pi}$ = 0.15915494	9.2018201–10	$\sqrt[3]{\pi^2}$ = 2.14502940	0.3314332
$\frac{3}{\pi}$ = 0.95492966	9.9799714–10	$\sqrt{\frac{3}{4\pi}}$ = 0.62035049	9.7926371–10
$\frac{4}{\pi}$ = 1.27323954	0.1049101	$\sqrt[3]{\frac{\pi}{6}}$ = 0.80599598	9.9063329–10

Number	Logarithm
If the radius r = 1, the length of the arc is	
for 1 degree = $\frac{\pi}{180}$ = 0.01745329	8.2418774–10
for 1 minute = $\frac{\pi}{10800}$ = 0.00029089	6.4637261–10
for 1 second = $\frac{\pi}{648000}$ = 0.00000485	4.6855749–10
$\sin 1''$ = 0.00000485	4.6855749–10

Table III—Natural Logarithms of Numbers

Base $e = 2.71828...$

NOTE. $\log_e 10N = \log_e N + \log_e 10$

$\log_e \frac{N}{10} = \log_e N - \log_e 10$

$\log_e 10 = 2.30259$

Examples: $\log_e 35 = \log_e 3.5 + \log_e 10$
$= 1.25276 + 2.30259 = 3.55535$

$\log_e .35 = \log_e 3.5 - \log_e 10$
$= 1.25276 - 2.30259 = 8.95017 - 10$

N	0	1	2	3	4	5	6	7	8	9
1.0	0.0 0000	0995	1980	2956	3922	4879	5827	6766	7696	8618
1.1	9531	*0436	*1333	*2222	*3103	*3976	*4842	*5700	*6551	*7395
1.2	0.1 8232	9062	9885	*0701	*1511	*2314	*3111	*3902	*4686	*5464
1.3	0.2 6236	7003	7763	8518	9267	*0010	*0748	*1481	*2208	*2930
1.4	0.3 3647	4359	5066	5767	6464	7156	7844	8526	9204	9878
1.5	0.4 0547	1211	1871	2527	3178	3825	4469	5108	5742	6373
1.6	7000	7623	8243	8858	9470	*0078	*0682	*1282	*1879	*2473
1.7	0.5 3063	3649	4232	4812	5389	5962	6531	7098	7661	8222
1.8	8779	9333	9884	*0432	*0977	*1519	*2058	*2594	*3127	*3658
1.9	0.6 4185	4710	5233	5752	6269	6783	7294	7803	8310	8813
2.0	9315	9813	*0310	*0804	*1295	*1784	*2271	*2755	*3237	*3716
2.1	0.7 4194	4669	5142	5612	6081	6547	7011	7473	7932	8390
2.2	8846	9299	9751	*0200	*0648	*1093	*1536	*1978	*2418	*2855
2.3	0.8 3291	3725	4157	4587	5015	5442	5866	6289	6710	7129
2.4	7547	7963	8377	8789	9200	9609	*0016	*0422	*0826	*1228
2.5	0.9 1629	2028	2426	2822	3216	3609	4001	4391	4779	5166
2.6	5551	5935	6317	6698	7078	7456	7833	8208	8582	8954
2.7	9325	9695	*0063	*0430	*0796	*1160	*1523	*1885	*2245	*2604
2.8	1.0 2962	3318	3674	4028	4380	4732	5082	5431	5779	6126
2.9	6471	6815	7158	7500	7841	8181	8519	8856	9192	9527
3.0	9861	*0194	*0526	*0856	*1186	*1514	*1841	*2168	*2493	*2817
3.1	1.1 3140	3462	3783	4103	4422	4740	5057	5373	5688	6002
3.2	6315	6627	6938	7248	7557	7865	8173	8479	8784	9089
3.3	9392	9695	9996	*0297	*0597	*0896	*1194	*1491	*1788	*2083
3.4	1.2 2378	2671	2964	3256	3547	3837	4127	4415	4703	4990
3.5	5276	5562	5846	6130	6413	6695	6976	7257	7536	7815
3.6	8093	8371	8647	8923	9198	9473	9746	*0019	*0291	*0563
3.7	1.3 0833	1103	1372	1641	1909	2176	2442	2708	2972	3237
3.8	3500	3763	4025	4286	4547	4807	5067	5325	5584	5841
3.9	6098	6354	6609	6864	7118	7372	7624	7877	8128	8379
4.0	8629	8879	9128	9377	9624	9872	*0118	*0364	*0610	*0854
4.1	1.4 1099	1342	1585	1828	2070	2311	2552	2792	3031	3270
4.2	3508	3746	3984	4220	4456	4692	4927	5161	5395	5629
4.3	5862	6094	6326	6557	6787	7018	7247	7476	7705	7933
4.4	8160	8387	8614	8840	9065	9290	9515	9739	9962	*0185
4.5	1.5 0408	0630	0851	1072	1293	1513	1732	1951	2170	2388
4.6	2606	2823	3039	3256	3471	3687	3902	4116	4330	4543
4.7	4756	4969	5181	5393	5604	5814	6025	6235	6444	6653
4.8	6862	7070	7277	7485	7691	7898	8104	8309	8515	8719
4.9	8924	9127	9331	9534	9737	9939	*0141	*0342	*0543	*0744
5.0	1.6 0944	1144	1343	1542	1741	1939	2137	2334	2531	2728
N	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

N	0	1	2	3	4	5	6	7	8	9
5.0	1.6 0944	1144	1343	1542	1741	1939	2137	2334	2531	2728
5.1	2924	3120	3315	3511	3705	3900	4094	4287	4481	4673
5.2	4866	5058	5250	5441	5632	5823	6013	6203	6393	6582
5.3	6771	6959	7147	7335	7523	7710	7896	8083	8269	8455
5.4	8640	8825	9010	9194	9378	9562	9745	9928	*0111	*0293
5.5	1.7 0475	0656	0838	1019	1199	1380	1560	1740	1919	2098
5.6	2277	2455	2633	2811	2988	3166	3342	3519	3695	3871
5.7	4047	4222	4397	4572	4746	4920	5094	5267	5440	5613
5.8	5786	5958	6130	6302	6473	6644	6815	6985	7156	7326
5.9	7495	7665	7834	8002	8171	8339	8507	8675	8842	9009
6.0	9176	9342	9509	9675	9840	*0006	*0171	*0336	*0500	*0665
6.1	1.8 0829	0993	1156	1319	1482	1645	1808	1970	2132	2294
6.2	2455	2616	2777	2938	3098	3258	3418	3578	3737	3896
6.3	4055	4214	4372	4530	4688	4845	5003	5160	5317	5473
6.4	5630	5786	5942	6097	6253	6408	6563	6718	6872	7026
6.5	7180	7334	7487	7641	7794	7947	8099	8251	8403	8555
6.6	8707	8858	9010	9160	9311	9462	9612	9762	9912	*0061
6.7	1.9 0211	0360	0509	0658	0806	0954	1102	1250	1398	1545
6.8	1692	1839	1986	2132	2279	2425	2571	2716	2862	3007
6.9	3152	3297	3442	3586	3730	3874	4018	4162	4305	4448
7.0	4591	4734	4876	5019	5161	5303	5445	5586	5727	5869
7.1	6009	6150	6291	6431	6571	6711	6851	6991	7130	7269
7.2	7408	7547	7685	7824	7962	8100	8238	8376	8513	8650
7.3	8787	8924	9061	9198	9334	9470	9606	9742	9877	*0013
7.4	2.0 0148	0283	0418	0553	0687	0821	0956	1089	1223	1357
7.5	1490	1624	1757	1890	2022	2155	2287	2419	2551	2683
7.6	2815	2946	3078	3209	3340	3471	3601	3732	3862	3992
7.7	4122	4252	4381	4511	4640	4769	4898	5027	5156	5284
7.8	5412	5540	5668	5796	5924	6051	6179	6306	6433	6560
7.9	6686	6813	6939	7065	7191	7317	7443	7568	7694	7819
8.0	7944	8069	8194	8318	8443	8567	8691	8815	8939	9063
8.1	9186	9310	9433	9556	9679	9802	9924	*0047	*0169	*0291
8.2	2.1 0413	0535	0657	0779	0900	1021	1142	1263	1384	1505
8.3	1626	1746	1866	1986	2106	2226	2346	2465	2585	2704
8.4	2823	2942	3061	3180	3298	3417	3535	3653	3771	3889
8.5	4007	4124	4242	4359	4476	4593	4710	4827	4943	5060
8.6	5176	5292	5409	5524	5640	5756	5871	5987	6102	6217
8.7	6332	6447	6562	6677	6791	6905	7020	7134	7248	7361
8.8	7475	7589	7702	7816	7929	8042	8155	8267	8380	8493
8.9	8605	8717	8830	8942	9054	9165	9277	9389	9500	9611
9.0	9722	9834	9944	*0055	*0166	*0276	*0387	*0497	*0607	*0717
9.1	2.2 0827	0937	1047	1157	1266	1375	1485	1594	1703	1812
9.2	1920	2029	2138	2246	2354	2462	2570	2678	2786	2894
9.3	3001	3109	3216	3324	3431	3538	3645	3751	3858	3965
9.4	4071	4177	4284	4390	4496	4601	4707	4813	4918	5024
9.5	5129	5234	5339	5444	5549	5654	5759	5863	5968	6072
9.6	6176	6280	6384	6488	6592	6696	6799	6903	7006	7109
9.7	7213	7316	7419	7521	7624	7727	7829	7932	8034	8136
9.8	8238	8340	8442	8544	8646	8747	8849	8950	9051	9152
9.9	9253	9354	9455	9556	9657	9757	9858	9958	*0058	*0158
10.0	2.3 0259	0358	0458	0558	0658	0757	0857	0956	1055	1154
N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
100	00 000	043	087	130	173	217	260	303	346	389	
01	432	475	518	561	604	647	689	732	775	817	44 43 42
02	00 860	903	945	988	*030	*072	*115	*157	*199	*242	1 4.4 4.3 4.2
03	01 284	326	368	410	452	494	536	578	620	662	2 8.8 8.6 8.4
											3 13.2 12.9 12.6
04	01 703	745	787	828	870	912	953	995	*036	*078	4 17.6 17.2 16.8
05	02 119	160	202	243	284	325	366	407	449	490	5 22.0 21.5 21.0
06	531	572	612	653	694	735	776	816	857	898	6 26.4 25.8 25.2
											7 30.8 30.1 29.4
07	02 938	979	*019	*060	*100	*141	*181	*222	*262	*302	8 35.2 34.4 33.6
08	03 342	383	423	463	503	543	583	623	663	703	9 39.6 38.7 37.8
09	03 743	782	822	862	902	941	981	*021	*060	*100	
110	04 139	179	218	258	297	336	376	415	454	493	
11	532	571	610	650	689	727	766	805	844	883	41 40 39
12	04 922	961	999	*038	*077	*115	*154	*192	*231	*269	1 4.1 4 3.9
13	05 308	346	385	423	461	500	538	576	614	652	2 8.2 8 7.8
											3 12.3 12 11.7
14	05 690	729	767	805	843	881	918	956	994	*032	4 16.4 16 15.6
15	06 070	108	145	183	221	258	296	333	371	408	5 20.5 20 19.5
16	446	483	521	558	595	633	670	707	744	781	6 24.6 24 23.4
											7 28.7 28 27.3
17	06 819	856	893	930	967	*004	*041	*078	*115	*151	8 32.8 32 31.2
18	07 188	225	262	298	335	372	408	445	482	518	9 36.9 36 35.1
19	555	591	628	664	700	737	773	809	846	882	
120	07 918	954	990	*027	*063	*099	*135	*171	*207	*243	
21	08 279	314	350	386	422	458	493	529	565	600	38 37 36
22	636	672	707	743	778	814	849	884	920	955	1 3.8 3.7 3.6
23	08 991	*026	*061	*096	*132	*167	*202	*237	*272	*307	2 7.6 7.4 7.2
											3 11.4 11.1 10.8
24	09 342	377	412	447	482	517	552	587	621	656	4 15.2 14.8 14.4
25	09 691	726	760	795	830	864	899	934	968	*003	5 19.0 18.5 18.0
26	10 037	072	106	140	175	209	243	278	312	346	6 22.8 22.2 21.6
											7 26.6 25.9 25.2
27	380	415	449	483	517	551	585	619	653	687	8 30.4 29.6 28.8
28	10 721	755	789	823	857	890	924	958	992	*025	9 34.2 33.3 32.4
29	11 059	093	126	160	193	227	261	294	327	361	
130	394	428	461	494	528	561	594	628	661	694	
31	11 727	760	793	826	860	893	926	959	992	*024	35 34 33
32	12 057	090	123	156	189	222	254	287	320	352	1 3.5 3.4 3.3
33	385	418	450	483	516	548	581	613	646	678	2 7.0 6.8 6.6
											3 10.5 10.2 9.9
34	12 710	743	775	808	840	872	905	937	969	*001	4 14.0 13.6 13.2
35	13 033	066	098	130	162	194	226	258	290	322	5 17.5 17.0 16.5
36	354	386	418	450	481	513	545	577	609	640	6 21.0 20.4 19.8
											7 24.5 23.8 23.1
37	672	704	735	767	799	830	862	893	925	956	8 28.0 27.2 26.4
38	13 988	*019	*051	*082	*114	*145	*176	*208	*239	*270	9 31.5 30.6 29.7
39	14 301	333	364	395	426	457	489	520	551	582	
140	613	644	675	706	737	768	799	829	860	891	
41	14 922	953	983	*014	*045	*076	*106	*137	*168	*198	32 31 30
42	15 229	259	290	320	351	381	412	442	473	503	1 3.2 3.1 3
43	534	564	594	625	655	685	715	746	776	806	2 6.4 6.2 6
											3 9.6 9.3 9
44	15 836	866	897	927	957	987	*017	*047	*077	*107	4 12.8 12.4 12
45	16 137	167	197	227	256	286	316	346	376	406	5 16.0 15.5 15
46	435	465	495	524	554	584	613	643	673	702	6 19.2 18.6 18
											7 22.4 21.7 21
47	16 732	761	791	820	850	879	909	938	967	997	8 25.6 24.8 24
48	17 026	056	085	114	143	173	202	231	260	289	9 28.8 27.9 27
49	319	348	377	406	435	464	493	522	551	580	
150	17 609	638	667	696	725	754	782	811	840	869	
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	150	17 609	638	667	696	725	754	782	811	840	869
29 28	51	17 898	926	955	984	*013	*041	*070	*099	*127	*156
1 2.9 2.8	52	18 184	213	241	270	298	327	355	384	412	441
2 5.8 5.6	53	469	498	526	554	583	611	639	667	696	724
3 8.7 8.4	54	18 752	780	808	837	865	893	921	949	977	*005
4 11.6 11.2	55	19 033	061	089	117	145	173	201	229	257	285
5 14.5 14.0	56	312	340	368	396	424	451	479	507	535	562
6 17.4 16.8											
7 20.3 19.6	57	590	618	645	673	700	728	756	783	811	838
8 23.2 22.4	58	19 866	893	921	948	976	*003	*030	*058	*085	*112
9 26.1 25.2	59	20 140	167	194	222	249	276	303	330	358	385
	160	412	439	466	493	520	548	575	602	629	656
27 26	61	683	710	737	763	790	817	844	871	898	925
1 2.7 2.6	62	20 952	978	*005	*032	*059	*085	*112	*139	*165	*192
2 5.4 5.2	63	21 219	245	272	299	325	352	378	405	431	458
3 8.1 7.8	64	484	511	537	564	590	617	643	669	696	722
4 10.8 10.4	65	21 748	775	801	827	854	880	906	932	958	985
5 13.5 13.0	66	22 011	037	063	089	115	141	167	194	220	246
6 16.2 15.6											
7 18.9 18.2	67	272	298	324	350	376	401	427	453	479	505
8 21.6 20.8	68	531	557	583	608	634	660	686	712	737	763
9 24.3 23.4	69	22 789	814	840	866	891	917	943	968	994	*019
	170	23 045	070	096	121	147	172	198	223	249	274
25	71	300	325	350	376	401	426	452	477	502	528
1 2.5	72	553	578	603	629	654	679	704	729	754	779
2 5.0	73	23 805	830	855	880	905	930	955	980	*005	*030
3 7.5	74	24 055	080	105	130	155	180	204	229	254	279
4 10.0	75	304	329	353	378	403	428	452	477	502	527
5 12.5	76	551	576	601	625	650	674	699	724	748	773
6 15.0											
7 17.5	77	24 797	822	846	871	895	920	944	969	993	*018
8 20.0	78	25 042	066	091	115	139	164	188	212	237	261
9 22.5	79	285	310	334	358	382	406	431	455	479	503
	180	527	551	575	600	624	648	672	696	720	744
24 23	81	25 768	792	816	840	864	888	912	935	959	983
1 2.4 2.3	82	26 007	031	055	079	102	126	150	174	198	221
2 4.8 4.6	83	245	269	293	316	340	364	387	411	435	458
3 7.2 6.9	84	482	505	529	553	576	600	623	647	670	694
4 9.6 9.2	85	717	741	764	788	811	834	858	881	905	928
5 12.0 11.5	86	26 951	975	998	*021	*045	*068	*091	*114	*138	*161
6 14.4 13.8											
7 16.8 16.1	87	27 184	207	231	254	277	300	323	346	370	393
8 19.2 18.4	88	416	439	462	485	508	531	554	577	600	623
9 21.6 20.7	89	646	669	692	715	738	761	784	807	830	852
	190	27 875	898	921	944	967	989	*012	*035	*058	*081
22 21	91	28 103	126	149	171	194	217	240	262	285	307
1 2.2 2.1	92	330	353	375	398	421	443	466	488	511	533
2 4.4 4.2	93	556	578	601	623	646	668	691	713	735	758
3 6.6 6.3	94	28 780	803	825	847	870	892	914	937	959	981
4 8.8 8.4	95	29 003	026	048	070	092	115	137	159	181	203
5 11.0 10.5	96	226	248	270	292	314	336	358	380	403	425
6 13.2 12.6											
7 15.4 14.7	97	447	469	491	513	535	557	579	601	623	645
8 17.6 16.8	98	667	688	710	732	754	776	798	820	842	863
9 19.8 18.9	99	29 885	907	929	951	973	994	*016	*038	*060	*081
	200	30 103	125	146	168	190	211	233	255	276	298
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
200	30 103	125	146	168	190	211	233	255	276	298	
01	320	341	363	384	406	428	449	471	492	514	
02	535	557	578	600	621	643	664	685	707	728	23 21
03	750	771	792	814	835	856	878	899	920	942	1 2.2 2.1
											2 4.4 4.2
04	30 963	984	*006	*027	*048	*069	*091	*112	*133	*154	3 6.6 6.3
05	31 175	197	218	239	260	281	302	323	345	366	4 8.8 8.4
06	387	408	429	450	471	492	513	534	555	576	5 11.0 10.5
											6 13.2 12.6
07	597	618	639	660	681	702	723	744	765	785	7 15.4 14.7
08	31 806	827	848	869	890	911	931	952	973	994	8 17.6 16.8
09	32 015	035	056	077	098	118	139	160	181	201	9 19.8 18.9
210	222	243	263	284	305	325	346	366	387	408	
11	428	449	469	490	510	531	552	572	593	613	
12	634	654	675	695	715	736	756	777	797	818	20
13	32 838	858	879	899	919	940	960	980	*001	*021	1 2
											2 4
14	33 041	062	082	102	122	143	163	183	203	224	3 6
15	244	264	284	304	325	345	365	385	405	425	4 8
16	445	465	486	506	526	546	566	586	606	626	5 10
											6 12
17	646	666	686	706	726	746	766	786	806	826	7 14
18	33 846	866	885	905	925	945	965	985	*005	*025	8 16
19	34 044	064	084	104	124	143	163	183	203	223	9 18
220	242	262	282	301	321	341	361	380	400	420	
21	439	459	479	498	518	537	557	577	596	616	
22	635	655	674	694	713	733	753	772	792	811	19
23	34 830	850	869	889	908	928	947	967	986	*005	1 1.9
											2 3.8
24	35 025	044	064	083	102	122	141	160	180	199	3 5.7
25	218	238	257	276	295	315	334	353	372	392	4 7.6
26	411	430	449	468	488	507	526	545	564	583	5 9.5
											6 11.4
27	603	622	641	660	679	698	717	736	755	774	7 13.3
28	793	813	832	851	870	889	908	927	946	965	8 15.2
29	35 984	*003	*021	*040	*059	*078	*097	*116	*135	*154	9 17.1
230	36 173	192	211	229	248	267	286	305	324	342	
31	361	380	399	418	436	455	474	493	511	530	
32	549	568	586	605	624	642	661	680	698	717	18
33	736	754	773	791	810	829	847	866	884	903	1 1.8
											2 3.6
34	36 922	940	959	977	996	*014	*033	*051	*070	*088	3 5.4
35	37 107	125	144	162	181	199	218	236	254	273	4 7.2
36	291	310	328	346	365	383	401	420	438	457	5 9.0
											6 10.8
37	475	493	511	530	548	566	585	603	621	639	7 12.6
38	658	676	694	712	731	749	767	785	803	822	8 14.4
39	37 840	858	876	894	912	931	949	967	985	*003	9 16.2
240	38 021	039	057	075	093	112	130	148	166	184	
41	202	220	238	256	274	292	310	328	346	364	
42	382	399	417	435	453	471	489	507	525	543	17
43	561	578	596	614	632	650	668	686	703	721	1 1.7
											2 3.4
44	739	757	775	792	810	828	846	863	881	899	3 5.1
45	38 917	934	952	970	987	*005	*023	*041	*058	*076	4 6.8
46	39 094	111	129	146	164	182	199	217	235	252	5 8.5
											6 10.2
47	270	287	305	322	340	358	375	393	410	428	7 11.9
48	445	463	480	498	515	533	550	568	585	602	8 13.6
49	620	637	655	672	690	707	724	742	759	777	9 15.3
250	39 794	811	829	846	863	881	898	915	933	950	
N	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Prop. Parts**

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	250	39 794	811	829	846	863	881	898	915	933	950
	51	39 967	985	*002	*019	*037	*054	*071	*088	*106	*123
	52	40 140	157	175	192	209	226	243	261	278	295
18	53	312	329	346	364	381	398	415	432	449	466
1 1.8											
2 3.6											
3 5.4	54	483	500	518	535	552	569	586	603	620	637
4 7.2	55	654	671	688	705	722	739	756	773	790	807
5 9.0	56	824	841	858	875	892	909	926	943	960	976
6 10.8											
7 12.6	57	40 993	*010	*027	*044	*061	*078	*095	*111	*128	*145
8 14.4	58	41 162	179	196	212	229	246	263	280	296	313
9 16.2	59	330	347	363	380	397	414	430	447	464	481
	260	497	514	531	547	564	581	597	614	631	647
	61	664	681	697	714	731	747	764	780	797	814
	62	830	847	863	880	896	913	929	946	963	979
17	63	41 996	*012	*029	*045	*062	*078	*095	*111	*127	*144
1 1.7											
2 3.4											
3 5.1	64	42 160	177	193	210	226	243	259	275	292	308
4 6.8	65	325	341	357	374	390	406	423	439	455	472
5 8.5	66	488	504	521	537	553	570	586	602	619	635
6 10.2											
7 11.9	67	651	667	684	700	716	732	749	765	781	797
8 13.6	68	813	830	846	862	878	894	911	927	943	959
9 15.3	69	42 975	991	*008	*024	*040	*056	*072	*088	*104	*120
	270	43 136	152	169	185	201	217	233	249	265	281
	71	297	313	329	345	361	377	393	409	425	441
	72	457	473	489	505	521	537	553	569	584	600
16	73	616	632	648	664	680	696	712	727	743	759
1 1.6											
2 3.2											
3 4.8	74	775	791	807	823	838	854	870	886	902	917
4 6.4	75	43 933	949	965	981	996	*012	*028	*044	*059	*075
5 8.0	76	44 091	107	122	138	154	170	185	201	217	232
6 9.6											
7 11.2	77	248	264	279	295	311	326	342	358	373	389
8 12.8	78	404	420	436	451	467	483	498	514	529	545
9 14.4	79	560	576	592	607	623	638	654	669	685	700
	280	716	731	747	762	778	793	809	824	840	855
	81	44 871	886	902	917	932	948	963	979	994	*010
	82	45 025	040	056	071	086	102	117	133	148	163
15	83	179	194	209	225	240	255	271	286	301	317
1 1.5											
2 3.0											
3 4.5	84	332	347	362	378	393	408	423	439	454	469
4 6.0	85	484	500	515	530	545	561	576	591	606	621
5 7.5	86	637	652	667	682	697	712	728	743	758	773
6 9.0											
7 10.5	87	788	803	818	834	849	864	879	894	909	924
8 12.0	88	45 939	954	969	984	*000	*015	*030	*045	*060	*075
9 13.5	89	46 090	105	120	135	150	165	180	195	210	225
	290	240	255	270	285	300	315	330	345	359	374
	91	389	404	419	434	449	464	479	494	509	523
	92	538	553	568	583	598	613	627	642	657	672
14	93	687	702	716	731	746	761	776	790	805	820
1 1.4											
2 2.8											
3 4.2	94	835	850	864	879	894	909	923	938	953	967
4 5.6	95	46 982	997	*012	*026	*041	*056	*070	*085	*100	*114
5 7.0	96	47 129	144	159	173	188	202	217	232	246	261
6 8.4											
7 9.8	97	276	290	305	319	334	349	363	378	392	407
8 11.2	98	422	436	451	465	480	494	509	524	538	553
9 12.6	99	567	582	596	611	625	640	654	669	683	698
	300	47 712	727	741	756	770	784	799	813	828	842
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
300	47 712	727	741	756	770	784	799	813	828	842	
01	47 857	871	885	900	914	929	943	958	972	986	
02	48 001	015	029	044	058	073	087	101	116	130	
03	144	159	173	187	202	216	230	244	259	273	15
04	287	302	316	330	344	359	373	387	401	416	1 1.5
05	430	444	458	473	487	501	515	530	544	558	2 3.0
06	572	586	601	615	629	643	657	671	686	700	3 4.5
07	714	728	742	756	770	785	799	813	827	841	4 6.0
08	855	869	883	897	911	926	940	954	968	982	5 7.5
09	48 996	*010	*024	*038	*052	*066	*080	*094	*108	*122	6 9.0
310	49 136	150	164	178	192	206	220	234	248	262	7 10.5
11	276	290	304	318	332	346	360	374	388	402	8 12.0
12	415	429	443	457	471	485	499	513	527	541	9 13.5
13	554	568	582	596	610	624	638	651	665	679	
14	693	707	721	734	748	762	776	790	803	817	
15	831	845	859	872	886	900	914	927	941	955	
16	49 969	982	996	*010	*024	*037	*051	*065	*079	*092	14
17	50 106	120	133	147	161	174	188	202	215	229	1 1.4
18	243	256	270	284	297	311	325	338	352	365	2 2.8
19	379	393	406	420	433	447	461	474	488	501	3 4.2
320	515	529	542	556	569	583	596	610	623	637	4 5.6
21	651	664	678	691	705	718	732	745	759	772	5 7.0
22	786	799	813	826	840	853	866	880	893	907	6 8.4
23	50 920	934	947	961	974	987	*001	*014	*028	*041	7 9.8
24	51 055	068	081	095	108	121	135	148	162	175	8 11.2
25	188	202	215	228	242	255	268	282	295	308	9 12.6
26	322	335	348	362	375	388	402	415	428	441	
27	455	468	481	495	508	521	534	548	561	574	
28	587	601	614	627	640	654	667	680	693	706	
29	720	733	746	759	772	786	799	812	825	838	13
330	851	865	878	891	904	917	930	943	957	970	1 1.3
31	51 983	996	*009	*022	*035	*048	*061	*075	*088	*101	2 2.6
32	52 114	127	140	153	166	179	192	205	218	231	3 3.9
33	244	257	270	284	297	310	323	336	349	362	4 5.2
34	375	388	401	414	427	440	453	466	479	492	5 6.5
35	504	517	530	543	556	569	582	595	608	621	6 7.8
36	634	647	660	673	686	699	711	724	737	750	7 9.1
37	763	776	789	802	815	827	840	853	866	879	8 10.4
38	52 892	905	917	930	943	956	969	982	994	*007	9 11.7
39	53 020	033	046	058	071	084	097	110	122	135	
340	148	161	173	186	199	212	224	237	250	263	
41	275	288	301	314	326	339	352	364	377	390	12
42	403	415	428	441	453	466	479	491	504	517	1 1.2
43	529	542	555	567	580	593	605	618	631	643	2 2.4
44	656	668	681	694	706	719	732	744	757	769	3 3.6
45	782	794	807	820	832	845	857	870	882	895	4 4.8
46	53 908	920	933	945	958	970	983	995	*008	*020	5 6.0
47	54 033	045	058	070	083	095	108	120	133	145	6 7.2
48	158	170	183	195	208	220	233	245	258	270	7 8.4
49	283	295	307	320	332	345	357	370	382	394	8 9.6
350	54 407	419	432	444	456	469	481	494	506	518	9 10.8
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	350	54 407	419	432	444	456	469	481	494	506	518
	51	531	543	555	568	580	593	605	617	630	642
	52	654	667	679	691	704	716	728	741	753	765
	53	777	790	802	814	827	839	851	864	876	888
13											
1 1.3	54	54 900	913	925	937	949	962	974	986	998	*011
2 2.6	55	55 023	035	047	060	072	084	096	108	121	133
3 3.9	56	145	157	169	182	194	206	218	230	242	255
4 5.2											
5 6.5	57	267	279	291	303	315	328	340	352	364	376
6 7.8	58	388	400	413	425	437	449	461	473	485	497
7 9.1	59	509	522	534	546	558	570	582	594	606	618
8 10.4											
9 11.7	**360**	630	642	654	666	678	691	703	715	727	739
	61	751	763	775	787	799	811	823	835	847	859
	62	871	883	895	907	919	931	943	955	967	979
	63	55 991	*003	*015	*027	*038	*050	*062	*074	*086	*098
	64	56 110	122	134	146	158	170	182	194	205	217
	65	229	241	253	265	277	289	301	312	324	336
	66	348	360	372	384	396	407	419	431	443	455
12											
1 1.2	67	467	478	490	502	514	526	538	549	561	573
2 2.4	68	585	597	608	620	632	644	656	667	679	691
3 3.6	69	703	714	726	738	750	761	773	785	797	808
4 4.8											
5 6.0	**370**	820	832	844	855	867	879	891	902	914	926
6 7.2											
7 8.4	71	56 937	949	961	972	984	996	*008	*019	*031	*043
8 9.6	72	57 054	066	078	089	101	113	124	136	148	159
9 10.8	73	171	183	194	206	217	229	241	252	264	276
	74	287	299	310	322	334	345	357	368	380	392
	75	403	415	426	438	449	461	473	484	496	507
	76	519	530	542	553	565	576	588	600	611	623
	77	634	646	657	669	680	692	703	715	726	738
	78	749	761	772	784	795	807	818	830	841	852
	79	864	875	887	898	910	921	933	944	955	967
11											
1 1.1	**380**	57 978	990	*001	*013	*024	*035	*047	*058	*070	*081
2 2.2											
3 3.3	81	58 092	104	115	127	138	149	161	172	184	195
4 4.4	82	206	218	229	240	252	263	274	286	297	309
5 5.5	83	320	331	343	354	365	377	388	399	410	422
6 6.6											
7 7.7	84	433	444	456	467	478	490	501	512	524	535
8 8.8	85	546	557	569	580	591	602	614	625	636	647
9 9.9	86	659	670	681	692	704	715	726	737	749	760
	87	771	782	794	805	816	827	838	850	861	872
	88	883	894	906	917	928	939	950	961	973	984
	89	58 995	*006	*017	*028	*040	*051	*062	*073	*084	*095
	390	59 106	118	129	140	151	162	173	184	195	207
10											
1 1.0	91	218	229	240	251	262	273	284	295	306	318
2 2.0	92	329	340	351	362	373	384	395	406	417	428
3 3.0	93	439	450	461	472	483	494	506	517	528	539
4 4.0											
5 5.0	94	550	561	572	583	594	605	616	627	638	649
6 6.0	95	660	671	682	693	704	715	726	737	748	759
7 7.0	96	770	780	791	802	813	824	835	846	857	868
8 8.0											
9 9.0	97	879	890	901	912	923	934	945	956	966	977
	98	59 988	999	*010	*021	*032	*043	*054	*065	*076	*086
	99	60 097	108	119	130	141	152	163	173	184	195
	400	60 206	217	228	239	249	260	271	282	293	304
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
400	60 206	217	228	239	249	260	271	282	293	304	
01	314	325	336	347	358	369	379	390	401	412	
02	423	433	444	455	466	477	487	498	509	520	
03	531	541	552	563	574	584	595	606	617	627	
04	638	649	660	670	681	692	703	713	724	735	
05	746	756	767	778	788	799	810	821	831	842	
06	853	863	874	885	895	906	917	927	938	949	
07	60 959	970	981	991	*002	*013	*023	*034	*045	*055	11
08	61 066	077	087	098	109	119	130	140	151	162	1 1.1
09	172	183	194	204	215	225	236	247	257	268	2 2.2
											3 3.3
											4 4.4
410	278	289	300	310	321	331	342	352	363	374	5 5.5
											6 6.6
11	384	395	405	416	426	437	448	458	469	479	7 7.7
12	490	500	511	521	532	542	553	563	574	584	8 8.8
13	595	606	616	627	637	648	658	669	679	690	9 9.9
14	700	711	721	731	742	752	763	773	784	794	
15	805	815	826	836	847	857	868	878	888	899	
16	61 909	920	930	941	951	962	972	982	993	*003	
17	62 014	024	034	045	055	066	076	086	097	107	
18	118	128	138	149	159	170	180	190	201	211	
19	221	232	242	252	263	273	284	294	304	315	
420	325	335	346	356	366	377	387	397	408	418	
21	428	439	449	459	469	480	490	500	511	521	
22	531	542	552	562	572	583	593	603	613	624	10
23	634	644	655	665	675	685	696	706	716	726	1 1.0
											2 2.0
24	737	747	757	767	778	788	798	808	818	829	3 3.0
25	839	849	859	870	880	890	900	910	921	931	4 4.0
26	62 941	951	961	972	982	992	*002	*012	*022	*033	5 5.0
											6 6.0
27	63 043	053	063	073	083	094	104	114	124	134	7 7.0
28	144	155	165	175	185	195	205	215	225	236	8 8.0
29	246	256	266	276	286	296	306	317	327	337	9 9.0
430	347	357	367	377	387	397	407	417	428	438	
31	448	458	468	478	488	498	508	518	528	538	
32	548	558	568	579	589	599	609	619	629	639	
33	649	659	669	679	689	699	709	719	729	739	
34	749	759	769	779	789	799	809	819	829	839	
35	849	859	869	879	889	899	909	919	929	939	
36	63 949	959	969	979	988	998	*008	*018	*028	*038	
37	64 048	058	068	078	088	098	108	118	128	137	
38	147	157	167	177	187	197	207	217	227	237	9
39	246	256	266	276	286	296	306	316	326	335	1 0.9
											2 1.8
440	345	355	365	375	385	395	404	414	424	434	3 2.7
											4 3.6
41	444	454	464	473	483	493	503	513	523	532	5 4.5
42	542	552	562	572	582	591	601	611	621	631	6 5.4
43	640	650	660	670	680	689	699	709	719	729	7 6.3
											8 7.2
44	738	748	758	768	777	787	797	807	816	826	9 8.1
45	836	846	856	865	875	885	895	904	914	924	
46	64 933	943	953	963	972	982	992	*002	*011	*021	
47	65 031	040	050	060	070	079	089	099	108	118	
48	128	137	147	157	167	176	186	196	205	215	
49	225	234	244	254	263	273	283	292	302	312	
450	65 321	331	341	350	360	369	379	389	398	408	
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	450	65 321	331	341	350	360	369	379	389	398	408
	51	418	427	437	447	456	466	475	485	495	504
	52	514	523	533	543	552	562	571	581	591	600
	53	610	619	629	639	648	658	667	677	686	696
	54	706	715	725	734	744	753	763	772	782	792
	55	801	811	820	830	839	849	858	868	877	887
	56	896	906	916	925	935	944	954	963	973	982
10											
1 1.0	57	65 992	*001	*011	*020	*030	*039	*049	*058	*068	*077
2 2.0	58	66 087	096	106	115	124	134	143	153	162	172
3 3.0	59	181	191	200	210	219	229	238	247	257	266
4 4.0											
5 5.0	**460**	276	285	295	304	314	323	332	342	351	361
6 6.0											
7 7.0	61	370	380	389	398	408	417	427	436	445	455
8 8.0	62	464	474	483	492	502	511	521	530	539	549
9 9.0	63	558	567	577	586	596	605	614	624	633	642
	64	652	661	671	680	689	699	708	717	727	736
	65	745	755	764	773	783	792	801	811	820	829
	66	839	848	857	867	876	885	894	904	913	922
	67	66 932	941	950	960	969	978	987	997	*006	*015
	68	67 025	034	043	052	062	071	080	089	099	108
	69	117	127	136	145	154	164	173	182	191	201
	470	210	219	228	237	247	256	265	274	284	293
	71	302	311	321	330	339	348	357	367	376	385
9	72	394	403	413	422	431	440	449	459	468	477
1 0.9	73	486	495	504	514	523	532	541	550	560	569
2 1.8											
3 2.7	74	578	587	596	605	614	624	633	642	651	660
4 3.6	75	669	679	688	697	706	715	724	733	742	752
5 4.5	76	761	770	779	788	797	806	815	825	834	843
6 5.4											
7 6.3	77	852	861	870	879	888	897	906	916	925	934
8 7.2	78	67 943	952	961	970	979	988	997	*006	*015	*024
9 8.1	79	68 034	043	052	061	070	079	088	097	106	115
	480	124	133	142	151	160	169	178	187	196	205
	81	215	224	233	242	251	260	269	278	287	296
	82	305	314	323	332	341	350	359	368	377	386
	83	395	404	413	422	431	440	449	458	467	476
	84	485	494	502	511	520	529	538	547	556	565
	85	574	583	592	601	610	619	628	637	646	655
	86	664	673	681	690	699	708	717	726	735	744
	87	753	762	771	780	789	797	806	815	824	833
8	88	842	851	860	869	878	886	895	904	913	922
1 0.8	89	68 931	940	949	958	966	975	984	993	*002	*011
2 1.6											
3 2.4	**490**	69 020	028	037	046	055	064	073	082	090	099
4 3.2											
5 4.0	91	108	117	126	135	144	152	161	170	179	188
6 4.8	92	197	205	214	223	232	241	249	258	267	276
7 5.6	93	285	294	302	311	320	329	338	346	355	364
8 6.4											
9 7.2	94	373	381	390	399	408	417	425	434	443	452
	95	461	469	478	487	496	504	513	522	531	539
	96	548	557	566	574	583	592	601	609	618	627
	97	636	644	653	662	671	679	688	697	705	714
	98	723	732	740	749	758	767	775	784	793	801
	99	810	819	827	836	845	854	862	871	880	888
	500	69 897	906	914	923	932	940	949	958	966	975
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
500	69 897	906	914	923	932	940	949	958	966	975	
01	69 984	992	*001	*010	*018	*027	*036	*044	*053	*062	
02	70 070	079	088	096	105	114	122	131	140	148	
03	157	165	174	183	191	200	209	217	226	234	
04	243	252	260	269	278	286	295	303	312	321	
05	329	338	346	355	364	372	381	389	398	406	
06	415	424	432	441	449	458	467	475	484	492	
											9
07	501	509	518	526	535	544	552	561	569	578	1 0.9
08	586	595	603	612	621	629	638	646	655	663	2 1.8
09	672	680	689	697	706	714	723	731	740	749	3 2.7
											4 3.6
510	757	766	774	783	791	800	808	817	825	834	5 4.5
											6 5.4
11	842	851	859	868	876	885	893	902	910	919	7 6.3
12	70 927	935	944	952	961	969	978	986	995	*003	8 7.2
13	71 012	020	029	037	046	054	063	071	079	088	9 8.1
14	096	105	113	122	130	139	147	155	164	172	
15	181	189	198	206	214	223	231	240	248	257	
16	265	273	282	290	299	307	315	324	332	341	
17	349	357	366	374	383	391	399	408	416	425	
18	433	441	450	458	466	475	483	492	500	508	
19	517	525	533	542	550	559	567	575	584	592	
520	600	609	617	625	634	642	650	659	667	675	
21	684	692	700	709	717	725	734	742	750	759	
22	767	775	784	792	800	809	817	825	834	842	8
23	850	858	867	875	883	892	900	908	917	925	1 0.8
											2 1.6
24	71 933	941	950	958	966	975	983	991	999	*008	3 2.4
25	72 016	024	032	041	049	057	066	074	082	090	4 3.2
26	099	107	115	123	132	140	148	156	165	173	5 4.0
											6 4.8
27	181	189	198	206	214	222	230	239	247	255	7 5.6
28	263	272	280	288	296	304	313	321	329	337	8 6.4
29	346	354	362	370	378	387	395	403	411	419	9 7.2
530	428	436	444	452	460	469	477	485	493	501	
31	509	518	526	534	542	550	558	567	575	583	
32	591	599	607	616	624	632	640	648	656	665	
33	673	681	689	697	705	713	722	730	738	746	
34	754	762	770	779	787	795	803	811	819	827	
35	835	843	852	860	868	876	884	892	900	908	
36	916	925	933	941	949	957	965	973	981	989	
37	72 997	*006	*014	*022	*030	*038	*046	*054	*062	*070	
38	73 078	086	094	102	111	119	127	135	143	151	7
39	159	167	175	183	191	199	207	215	223	231	1 0.7
											2 1.4
540	239	247	255	263	272	280	288	296	304	312	3 2.1
											4 2.8
41	320	328	336	344	352	360	368	376	384	392	5 3.5
42	400	408	416	424	432	440	448	456	464	472	6 4.2
43	480	488	496	504	512	520	528	536	544	552	7 4.9
											8 5.6
44	560	568	576	584	592	600	608	616	624	632	9 6.3
45	640	648	656	664	672	679	687	695	703	711	
46	719	727	735	743	751	759	767	775	783	791	
47	799	807	815	823	830	838	846	854	862	870	
48	878	886	894	902	910	918	926	933	941	949	
49	73 957	965	973	981	989	997	*005	*013	*020	*028	
550	74 036	044	052	060	068	076	084	092	099	107	
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	550	74 036	044	052	060	068	076	084	092	099	107
	51	115	123	131	139	147	155	162	170	178	186
	52	194	202	210	218	225	233	241	249	257	265
	53	273	280	288	296	304	312	320	327	335	343
	54	351	359	367	374	382	390	398	406	414	421
	55	429	437	445	453	461	468	476	484	492	500
	56	507	515	523	531	539	547	554	562	570	578
	57	586	593	601	609	617	624	632	640	648	656
	58	663	671	679	687	695	702	710	718	726	733
	59	741	749	757	764	772	780	788	796	803	811
	560	819	827	834	842	850	858	865	873	881	889
	61	896	904	912	920	927	935	943	950	958	966
8	62	74 974	981	989	997	*005	*012	*020	*028	*035	*043
1 0.8	63	75 051	059	066	074	082	089	097	105	113	120
2 1.6											
3 2.4	64	128	136	143	151	159	166	174	182	189	197
4 3.2	65	205	213	220	228	236	243	251	259	266	274
5 4.0	66	282	289	297	305	312	320	328	335	343	351
6 4.8											
7 5.6	67	358	366	374	381	389	397	404	412	420	427
8 6.4	68	435	442	450	458	465	473	481	488	496	504
9 7.2	69	511	519	526	534	542	549	557	565	572	580
	570	587	595	603	610	618	626	633	641	648	656
	71	664	671	679	686	694	702	709	717	724	732
	72	740	747	755	762	770	778	785	793	800	808
	73	815	823	831	838	846	853	861	868	876	884
	74	891	899	906	914	921	929	937	944	952	959
	75	75 967	974	982	989	997	*005	*012	*020	*027	*035
	76	76 042	050	057	065	072	080	087	095	103	110
	77	118	125	133	140	148	155	163	170	178	185
	78	193	200	208	215	223	230	238	245	253	260
	79	268	275	283	290	298	305	313	320	328	335
	580	343	350	358	365	373	380	388	395	403	410
7	81	418	425	433	440	448	455	462	470	477	485
1 0.7	82	492	500	507	515	522	530	537	545	552	559
2 1.4	83	567	574	582	589	597	604	612	619	626	634
3 2.1											
4 2.8	84	641	649	656	664	671	678	686	693	701	708
5 3.5	85	716	723	730	738	745	753	760	768	775	782
6 4.2	86	790	797	805	812	819	827	834	842	849	856
7 4.9											
8 5.6	87	864	871	879	886	893	901	908	916	923	930
9 6.3	88	76 938	945	953	960	967	975	982	989	997	*004
	89	77 012	019	026	034	041	048	056	063	070	078
	590	085	093	100	107	115	122	129	137	144	151
	91	159	166	173	181	188	195	203	210	217	225
	92	232	240	247	254	262	269	276	283	291	298
	93	305	313	320	327	335	342	349	357	364	371
	94	379	386	393	401	408	415	422	430	437	444
	95	452	459	466	474	481	488	495	503	510	517
	96	525	532	539	546	554	561	568	576	583	590
	97	597	605	612	619	627	634	641	648	656	663
	98	670	677	685	692	699	706	714	721	728	735
	99	743	750	757	764	772	779	786	793	801	808
	600	77 815	822	830	837	844	851	859	866	873	880
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9
600	77 815	822	830	837	844	851	859	866	873	880
01	887	895	902	909	916	924	931	938	945	952
02	77 960	967	974	981	988	996	*003	*010	*017	*025
03	78 032	039	046	053	061	068	075	082	089	097
04	104	111	118	125	132	140	147	154	161	168
05	176	183	190	197	204	211	219	226	233	240
06	247	254	262	269	276	283	290	297	305	312
07	319	326	333	340	347	355	362	369	376	383
08	390	398	405	412	419	426	433	440	447	455
09	462	469	476	483	490	497	504	512	519	526
610	533	540	547	554	561	569	576	583	590	597
11	604	611	618	625	633	640	647	654	661	668
12	675	682	689	696	704	711	718	725	732	739
13	746	753	760	767	774	781	789	796	803	810
14	817	824	831	838	845	852	859	866	873	880
15	888	895	902	909	916	923	930	937	944	951
16	78 958	965	972	979	986	993	*000	*007	*014	*021
17	79 029	036	043	050	057	064	071	078	085	092
18	099	106	113	120	127	134	141	148	155	162
19	169	176	183	190	197	204	211	218	225	232
620	239	246	253	260	267	274	281	288	295	302
21	309	316	323	330	337	344	351	358	365	372
22	379	386	393	400	407	414	421	428	435	442
23	449	456	463	470	477	484	491	498	505	511
24	518	525	532	539	546	553	560	567	574	581
25	588	595	602	609	616	623	630	637	644	650
26	657	664	671	678	685	692	699	706	713	720
27	727	734	741	748	754	761	768	775	782	789
28	796	803	810	817	824	831	837	844	851	858
29	865	872	879	886	893	900	906	913	920	927
630	79 934	941	948	955	962	969	975	982	989	996
31	80 003	010	017	024	030	037	044	051	058	065
32	072	079	085	092	099	106	113	120	127	134
33	140	147	154	161	168	175	182	188	195	202
34	209	216	223	229	236	243	250	257	264	271
35	277	284	291	298	305	312	318	325	332	339
36	346	353	359	366	373	380	387	393	400	407
37	414	421	428	434	441	448	455	462	468	475
38	482	489	496	502	509	516	523	530	536	543
39	550	557	564	570	577	584	591	598	604	611
640	618	625	632	638	645	652	659	665	672	679
41	686	693	699	706	713	720	726	733	740	747
42	754	760	767	774	781	787	794	801	808	814
43	821	828	835	841	848	855	862	868	875	882
44	889	895	902	909	916	922	929	936	943	949
45	80 956	963	969	976	983	990	996	*003	*010	*017
46	81 023	030	037	043	050	057	064	070	077	084
47	090	097	104	111	117	124	131	137	144	151
48	158	164	171	178	184	191	198	204	211	218
49	224	231	238	245	251	258	265	271	278	285
650	81 291	298	305	311	318	325	331	338	345	351
N	0	1	2	3	4	5	6	7	8	9

Prop. Parts

8	
1	0.8
2	1.6
3	2.4
4	3.2
5	4.0
6	4.8
7	5.6
8	6.4
9	7.2

7	
1	0.7
2	1.4
3	2.1
4	2.8
5	3.5
6	4.2
7	4.9
8	5.6
9	6.3

6	
1	0.6
2	1.2
3	1.8
4	2.4
5	3.0
6	3.6
7	4.2
8	4.8
9	5.4

Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	650	81 291	298	305	311	318	325	331	338	345	351
	51	358	365	371	378	385	391	398	405	411	418
	52	425	431	438	445	451	458	465	471	478	485
	53	491	498	505	511	518	525	531	538	544	551
	54	558	564	571	578	584	591	598	604	611	617
	55	624	631	637	644	651	657	664	671	677	684
	56	690	697	704	710	717	723	730	737	743	750
	57	757	763	770	776	783	790	796	803	809	816
	58	823	829	836	842	849	856	862	869	875	882
	59	889	895	902	908	915	921	928	935	941	948
	660	81 954	961	968	974	981	987	994	*000	*007	*014
7	61	82 020	027	033	040	046	053	060	066	073	079
1 0.7	62	086	092	099	105	112	119	125	132	138	145
2 1.4	63	151	158	164	171	178	184	191	197	204	210
3 2.1	64	217	223	230	236	243	249	256	263	269	276
4 2.8	65	282	289	295	302	308	315	321	328	334	341
5 3.5	66	347	354	360	367	373	380	387	393	400	406
6 4.2											
7 4.9	67	413	419	426	432	439	445	452	458	465	471
8 5.6	68	478	484	491	497	504	510	517	523	530	536
9 6.3	69	543	549	556	562	569	575	582	588	595	601
	670	607	614	620	627	633	640	646	653	659	666
	71	672	679	685	692	698	705	711	718	724	730
	72	737	743	750	756	763	769	776	782	789	795
	73	802	808	814	821	827	834	840	847	853	860
	74	866	872	879	885	892	898	905	911	918	924
	75	930	937	943	950	956	963	969	975	982	988
	76	82 995	*001	*008	*014	*020	*027	*033	*040	*046	*052
	77	83 059	065	072	078	085	091	097	104	110	117
	78	123	129	136	142	149	155	161	168	174	181
	79	187	193	200	206	213	219	225	232	238	245
	680	251	257	264	270	276	283	289	296	302	308
6	81	315	321	327	334	340	347	353	359	366	372
1 0.6	82	378	385	391	398	404	410	417	423	429	436
2 1.2	83	442	448	455	461	467	474	480	487	493	499
3 1.8											
4 2.4	84	506	512	518	525	531	537	544	550	556	563
5 3.0	85	569	575	582	588	594	601	607	613	620	626
6 3.6	86	632	639	645	651	658	664	670	677	683	689
7 4.2											
8 4.8	87	696	702	708	715	721	727	734	740	746	753
9 5.4	88	759	765	771	778	784	790	797	803	809	816
	89	822	828	835	841	847	853	860	866	872	879
	690	885	891	897	904	910	916	923	929	935	942
	91	83 948	954	960	967	973	979	985	992	998	*004
	92	84 011	017	023	029	036	042	048	055	061	067
	93	073	080	086	092	098	105	111	117	123	130
	94	136	142	148	155	161	167	173	180	186	192
	95	198	205	211	217	223	230	236	242	248	255
	96	261	267	273	280	286	292	298	305	311	317
	97	323	330	336	342	348	354	361	367	373	379
	98	386	392	398	404	410	417	423	429	435	442
	99	448	454	460	466	473	479	485	491	497	504
	700	84 510	516	522	528	535	541	547	553	559	566
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9
700	84 510	516	522	528	535	541	547	553	559	566
01	572	578	584	590	597	603	609	615	621	628
02	634	640	646	652	658	665	671	677	683	689
03	696	702	708	714	720	726	733	739	745	751
04	757	763	770	776	782	788	794	800	807	813
05	819	825	831	837	844	850	856	862	868	874
06	880	887	893	899	905	911	917	924	930	936
07	84 942	948	954	960	967	973	979	985	991	997
08	85 003	009	016	022	028	034	040	046	052	058
09	065	071	077	083	089	095	101	107	114	120
710	126	132	138	144	150	156	163	169	175	181
11	187	193	199	205	211	217	224	230	236	242
12	248	254	260	266	272	278	285	291	297	303
13	309	315	321	327	333	339	345	352	358	364
14	370	376	382	388	394	400	406	412	418	425
15	431	437	443	449	455	461	467	473	479	485
16	491	497	503	509	516	522	528	534	540	546
17	552	558	564	570	576	582	588	594	600	606
18	612	618	625	631	637	643	649	655	661	667
19	673	679	685	691	697	703	709	715	721	727
720	733	739	745	751	757	763	769	775	781	788
21	794	800	806	812	818	824	830	836	842	848
22	854	860	866	872	878	884	890	896	902	908
23	914	920	926	932	938	944	950	956	962	968
24	85 974	980	986	992	998	*004	*010	*016	*022	*028
25	86 034	040	046	052	058	064	070	076	082	088
26	094	100	106	112	118	124	130	136	141	147
27	153	159	165	171	177	183	189	195	201	207
28	213	219	225	231	237	243	249	255	261	267
29	273	279	285	291	297	303	308	314	320	326
730	332	338	344	350	356	362	368	374	380	386
31	392	398	404	410	415	421	427	433	439	445
32	451	457	463	469	475	481	487	493	499	504
33	510	516	522	528	534	540	546	552	558	564
34	570	576	581	587	593	599	605	611	617	623
35	629	635	641	646	652	658	664	670	676	682
36	688	694	700	705	711	717	723	729	735	741
37	747	753	759	764	770	776	782	788	794	800
38	806	812	817	823	829	835	841	847	853	859
39	864	870	876	882	888	894	900	906	911	917
740	923	929	935	941	947	953	958	964	970	976
41	86 982	988	994	999	*005	*011	*017	*023	*029	*035
42	87 040	046	052	058	064	070	075	081	087	093
43	099	105	111	116	122	128	134	140	146	151
44	157	163	169	175	181	186	192	198	204	210
45	216	221	227	233	239	245	251	256	262	268
46	274	280	286	291	297	303	309	315	320	326
47	332	338	344	349	355	361	367	373	379	384
48	390	396	402	408	413	419	425	431	437	442
49	448	454	460	466	471	477	483	489	495	500
750	87 506	512	518	523	529	535	541	547	552	558
N	0	1	2	3	4	5	6	7	8	9

Prop. Parts	
7	
1	0.7
2	1.4
3	2.1
4	2.8
5	3.5
6	4.2
7	4.9
8	5.6
9	6.3

Prop. Parts	
6	
1	0.6
2	1.2
3	1.8
4	2.4
5	3.0
6	3.6
7	4.2
8	4.8
9	5.4

Prop. Parts	
5	
1	0.5
2	1.0
3	1.5
4	2.0
5	2.5
6	3.0
7	3.5
8	4.0
9	4.5

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	750	87 506	512	518	523	529	535	541	547	552	558
	51	564	570	576	581	587	593	599	604	610	616
	52	622	628	633	639	645	651	656	662	668	674
	53	679	685	691	697	703	708	714	720	726	731
	54	737	743	749	754	760	766	772	777	783	789
	55	795	800	806	812	818	823	829	835	841	846
	56	852	858	864	869	875	881	887	892	898	904
	57	910	915	921	927	933	938	944	950	955	961
	58	87 967	973	978	984	990	996	*001	*007	*013	*018
	59	88 024	030	036	041	047	053	058	064	070	076
	760	081	087	093	098	104	110	116	121	127	133
	61	138	144	150	156	161	167	173	178	184	190
	62	195	201	207	213	218	224	230	235	241	247
6	63	252	258	264	270	275	281	287	292	298	304
1 0.6											
2 1.2											
3 1.8	64	309	315	321	326	332	338	343	349	355	360
4 2.4	65	366	372	377	383	389	395	400	406	412	417
5 3.0	66	423	429	434	440	446	451	457	463	468	474
6 3.6											
7 4.2	67	480	485	491	497	502	508	513	519	525	530
8 4.8	68	536	542	547	553	559	564	570	576	581	587
9 5.4	69	593	598	604	610	615	621	627	632	638	643
	770	649	655	660	666	672	677	683	689	694	700
	71	705	711	717	722	728	734	739	745	750	756
	72	762	767	773	779	784	790	795	801	807	812
	73	818	824	829	835	840	846	852	857	863	868
	74	874	880	885	891	897	902	908	913	919	925
	75	930	936	941	947	953	958	964	969	975	981
	76	88 986	992	997	*003	*009	*014	*020	*025	*031	*037
	77	89 042	048	053	059	064	070	076	081	087	092
	78	098	104	109	115	120	126	131	137	143	148
	79	154	159	165	170	176	182	187	193	198	204
	780	209	215	221	226	232	237	243	248	254	260
	81	265	271	276	282	287	293	298	304	310	315
	82	321	326	332	337	343	348	354	360	365	371
5	83	376	382	387	393	398	404	409	415	421	426
1 0.5											
2 1.0											
3 1.5											
4 2.0	84	432	437	443	448	454	459	465	470	476	481
5 2.5	85	487	492	498	504	509	515	520	526	531	537
6 3.0	86	542	548	553	559	564	570	575	581	586	592
7 3.5											
8 4.0	87	597	603	609	614	620	625	631	636	642	647
9 4.5	88	653	658	664	669	675	680	686	691	697	702
	89	708	713	719	724	730	735	741	746	752	757
	790	763	768	774	779	785	790	796	801	807	812
	91	818	823	829	834	840	845	851	856	862	867
	92	873	878	883	889	894	900	905	911	916	922
	93	927	933	938	944	949	955	960	966	971	977
	94	89 982	988	993	998	*004	*009	*015	*020	*026	*031
	95	90 037	042	048	053	059	064	069	075	080	086
	96	091	097	102	108	113	119	124	129	135	140
	97	146	151	157	162	168	173	179	184	189	195
	98	200	206	211	217	222	227	233	238	244	249
	99	255	260	266	271	276	282	287	293	298	304
	800	90 309	314	320	325	331	336	342	347	352	358
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
800	90 309	314	320	325	331	336	342	347	352	358	
01	363	369	374	380	385	390	396	401	407	412	
02	417	423	428	434	439	445	450	455	461	466	
03	472	477	482	488	493	499	504	509	515	520	
04	526	531	536	542	547	553	558	563	569	574	
05	580	585	590	596	601	607	612	617	623	628	
06	634	639	644	650	655	660	666	671	677	682	
07	687	693	698	703	709	714	720	725	730	736	
08	741	747	752	757	763	768	773	779	784	789	
09	795	800	806	811	816	822	827	832	838	843	
810	849	854	859	865	870	875	881	886	891	897	
11	902	907	913	918	924	929	934	940	945	950	
12	90 956	961	966	972	977	982	988	993	998	*004	
13	91 009	014	020	025	030	036	041	046	052	057	
14	062	068	073	078	084	089	094	100	105	110	
15	116	121	126	132	137	142	148	153	158	164	
16	169	174	180	185	190	196	201	206	212	217	
17	222	228	233	238	243	249	254	259	265	270	
18	275	281	286	291	297	302	307	312	318	323	
19	328	334	339	344	350	355	360	365	371	376	
820	381	387	392	397	403	408	413	418	424	429	
21	434	440	445	450	455	461	466	471	477	482	
22	487	492	498	503	508	514	519	524	529	535	
23	540	545	551	556	561	566	572	577	582	587	
24	593	598	603	609	614	619	624	630	635	640	
25	645	651	656	661	666	672	677	682	687	693	
26	698	703	709	714	719	724	730	735	740	745	
27	751	756	761	766	772	777	782	787	793	798	
28	803	808	814	819	824	829	834	840	845	850	
29	855	861	866	871	876	882	887	892	897	903	
830	908	913	918	924	929	934	939	944	950	955	
31	91 960	965	971	976	981	986	991	997	*002	*007	
32	92 012	018	023	028	033	038	044	049	054	059	
33	065	070	075	080	085	091	096	101	106	111	
34	117	122	127	132	137	143	148	153	158	163	
35	169	174	179	184	189	195	200	205	210	215	
36	221	226	231	236	241	247	252	257	262	267	
37	273	278	283	288	293	298	304	309	314	319	
38	324	330	335	340	345	350	355	361	366	371	
39	376	381	387	392	397	402	407	412	418	423	
840	428	433	438	443	449	454	459	464	469	474	
41	480	485	490	495	500	505	511	516	521	526	
42	531	536	542	547	552	557	562	567	572	578	
43	583	588	593	598	603	609	614	619	624	629	
44	634	639	645	650	655	660	665	670	675	681	
45	686	691	696	701	706	711	716	722	727	732	
46	737	742	747	752	758	763	768	773	778	783	
47	788	793	799	804	809	814	819	824	829	834	
48	840	845	850	855	860	865	870	875	881	886	
49	891	896	901	906	911	916	921	927	932	937	
850	92 942	947	952	957	962	967	973	978	983	988	
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

6	
1	0.6
2	1.2
3	1.8
4	2.4
5	3.0
6	3.6
7	4.2
8	4.8
9	5.4

5	
1	0.5
2	1.0
3	1.5
4	2.0
5	2.5
6	3.0
7	3.5
8	4.0
9	4.5

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	850	92 942	947	952	957	962	967	973	978	983	988
	51	92 993	998	*003	*008	*013	*018	*024	*029	*034	*039
	52	93 044	049	054	059	064	069	075	080	085	090
	53	095	100	105	110	115	120	125	131	136	141
	54	146	151	156	161	166	171	176	181	186	192
	55	197	202	207	212	217	222	227	232	237	242
	56	247	252	258	263	268	273	278	283	288	293
6 / 1 0.6 / 2 1.2 / 3 1.8 / 4 2.4 / 5 3.0 / 6 3.6 / 7 4.2 / 8 4.8 / 9 5.4	57	298	303	308	313	318	323	328	334	339	344
	58	349	354	359	364	369	374	379	384	389	394
	59	399	404	409	414	420	425	430	435	440	445
	860	450	455	460	465	470	475	480	485	490	495
	61	500	505	510	515	520	526	531	536	541	546
	62	551	556	561	566	571	576	581	586	591	596
	63	601	606	611	616	621	626	631	636	641	646
	64	651	656	661	666	671	676	682	687	692	697
	65	702	707	712	717	722	727	732	737	742	747
	66	752	757	762	767	772	777	782	787	792	797
	67	802	807	812	817	822	827	832	837	842	847
	68	852	857	862	867	872	877	882	887	892	897
	69	902	907	912	917	922	927	932	937	942	947
	870	93 952	957	962	967	972	977	982	987	992	997
	71	94 002	007	012	017	022	027	032	037	042	047
	72	052	057	062	067	072	077	082	086	091	096
5 / 1 0.5 / 2 1.0 / 3 1.5 / 4 2.0 / 5 2.5 / 6 3.0 / 7 3.5 / 8 4.0 / 9 4.5	73	101	106	111	116	121	126	131	136	141	146
	74	151	156	161	166	171	176	181	186	191	196
	75	201	206	211	216	221	226	231	236	240	245
	76	250	255	260	265	270	275	280	285	290	295
	77	300	305	310	315	320	325	330	335	340	345
	78	349	354	359	364	369	374	379	384	389	394
	79	399	404	409	414	419	424	429	433	438	443
	880	448	453	458	463	468	473	478	483	488	493
	81	498	503	507	512	517	522	527	532	537	542
	82	547	552	557	562	567	571	576	581	586	591
	83	596	601	606	611	616	621	626	630	635	640
	84	645	650	655	660	665	670	675	680	685	689
	85	694	699	704	709	714	719	724	729	734	738
	86	743	748	753	758	763	768	773	778	783	787
	87	792	797	802	807	812	817	822	827	832	836
	88	841	846	851	856	861	866	871	876	880	885
4 / 1 0.4 / 2 0.8 / 3 1.2 / 4 1.6 / 5 2.0 / 6 2.4 / 7 2.8 / 8 3.2 / 9 3.6	89	890	895	900	905	910	915	919	924	929	934
	890	939	944	949	954	959	963	968	973	978	983
	91	94 988	993	998	*002	*007	*012	*017	*022	*027	*032
	92	95 036	041	046	051	056	061	066	071	075	080
	93	085	090	095	100	105	109	114	119	124	129
	94	134	139	143	148	153	158	163	168	173	177
	95	182	187	192	197	202	207	211	216	221	226
	96	231	236	240	245	250	255	260	265	270	274
	97	279	284	289	294	299	303	308	313	318	323
	98	328	332	337	342	347	352	357	361	366	371
	99	376	381	386	390	395	400	405	410	415	419
	900	95 424	429	434	439	444	448	453	458	463	468
Prop. Parts	**N**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

N	0	1	2	3	4	5	6	7	8	9	Prop. Parts
900	95 424	429	434	439	444	448	453	458	463	468	
01	472	477	482	487	492	497	501	506	511	516	
02	521	525	530	535	540	545	550	554	559	564	
03	569	574	578	583	588	593	598	602	607	612	
04	617	622	626	631	636	641	646	650	655	660	
05	665	670	674	679	684	689	694	698	703	708	
06	713	718	722	727	732	737	742	746	751	756	
07	761	766	770	775	780	785	789	794	799	804	
08	809	813	818	823	828	832	837	842	847	852	
09	856	861	866	871	875	880	885	890	895	899	
910	904	909	914	918	923	928	933	938	942	947	
11	952	957	961	966	971	976	980	985	990	995	
12	95 999	*004	*009	*014	*019	*023	*028	*033	*038	*042	
13	96 047	052	057	061	066	071	076	080	085	090	5 1 0.5 2 1.0 3 1.5
14	095	099	104	109	114	118	123	128	133	137	
15	142	147	152	156	161	166	171	175	180	185	4 2.0 5 2.5 6 3.0
16	190	194	199	204	209	213	218	223	227	232	
17	237	242	246	251	256	261	265	270	275	280	7 3.5 8 4.0 9 4.5
18	284	289	294	298	303	308	313	317	322	327	
19	332	336	341	346	350	355	360	365	369	374	
920	379	384	388	393	398	402	407	412	417	421	
21	426	431	435	440	445	450	454	459	464	468	
22	473	478	483	487	492	497	501	506	511	515	
23	520	525	530	534	539	544	548	553	558	562	
24	567	572	577	581	586	591	595	600	605	609	
25	614	619	624	628	633	638	642	647	652	656	
26	661	666	670	675	680	685	689	694	699	703	
27	708	713	717	722	727	731	736	741	745	750	
28	755	759	764	769	774	778	783	788	792	797	
29	802	806	811	816	820	825	830	834	839	844	
930	848	853	858	862	867	872	876	881	886	890	
31	895	900	904	909	914	918	923	928	932	937	
32	942	946	951	956	960	965	970	974	979	984	
33	96 988	993	997	*002	*007	*011	*016	*021	*025	*030	4 1 0.4 2 0.8 3 1.2
34	97 035	039	044	049	053	058	063	067	072	077	
35	081	086	090	095	100	104	109	114	118	123	4 1.6 5 2.0 6 2.4
36	128	132	137	142	146	151	155	160	165	169	
37	174	179	183	188	192	197	202	206	211	216	7 2.8 8 3.2 9 3.6
38	220	225	230	234	239	243	248	253	257	262	
39	267	271	276	280	285	290	294	299	304	308	
940	313	317	322	327	331	336	340	345	350	354	
41	359	364	368	373	377	382	387	391	396	400	
42	405	410	414	419	424	428	433	437	442	447	
43	451	456	460	465	470	474	479	483	488	493	
44	497	502	506	511	516	520	525	529	534	539	
45	543	548	552	557	562	566	571	575	580	585	
46	589	594	598	603	607	612	617	621	626	630	
47	635	640	644	649	653	658	663	667	672	676	
48	681	685	690	695	699	704	708	713	717	722	
49	727	731	736	740	745	749	754	759	763	768	
950	97 772	777	782	786	791	795	800	804	809	813	
N	0	1	2	3	4	5	6	7	8	9	Prop. Parts

Prop. Parts	N	0	1	2	3	4	5	6	7	8	9
	950	97 772	777	782	786	791	795	800	804	809	813
	51	818	823	827	832	836	841	845	850	855	859
	52	864	868	873	877	882	886	891	896	900	905
	53	909	914	918	923	928	932	937	941	946	950
	54	97 955	959	964	968	973	978	982	987	991	996
	55	98 000	005	009	014	019	023	028	032	037	041
	56	046	050	055	059	064	068	073	078	082	087
	57	091	096	100	105	109	114	118	123	127	132
	58	137	141	146	150	155	159	164	168	173	177
	59	182	186	191	195	200	204	209	214	218	223
	960	227	232	236	241	245	250	254	259	263	268
	61	272	277	281	286	290	295	299	304	308	313
	62	318	322	327	331	336	340	345	349	354	358
5	63	363	367	372	376	381	385	390	394	399	403
1 0.5											
2 1.0											
3 1.5	64	408	412	417	421	426	430	435	439	444	448
4 2.0	65	453	457	462	466	471	475	480	484	489	493
5 2.5	66	498	502	507	511	516	520	525	529	534	538
6 3.0											
7 3.5	67	543	547	552	556	561	565	570	574	579	583
8 4.0	68	588	592	597	601	605	610	614	619	623	628
9 4.5	69	632	637	641	646	650	655	659	664	668	673
	970	677	682	686	691	695	700	704	709	713	717
	71	722	726	731	735	740	744	749	753	758	762
	72	767	771	776	780	784	789	793	798	802	807
	73	811	816	820	825	829	834	838	843	847	851
	74	856	860	865	869	874	878	883	887	892	896
	75	900	905	909	914	918	923	927	932	936	941
	76	945	949	954	958	963	967	972	976	981	985
	77	98 989	994	998	*003	*007	*012	*016	*021	*025	*029
	78	99 034	038	043	047	052	056	061	065	069	074
	79	078	083	087	092	096	100	105	109	114	118
	980	123	127	131	136	140	145	149	154	158	162
	81	167	171	176	180	185	189	193	198	202	207
	82	211	216	220	224	229	233	238	242	247	251
4	83	255	260	264	269	273	277	282	286	291	295
1 0.4											
2 0.8											
3 1.2											
4 1.6	84	300	304	308	313	317	322	326	330	335	339
5 2.0	85	344	348	352	357	361	366	370	374	379	383
6 2.4	86	388	392	396	401	405	410	414	419	423	427
7 2.8											
8 3.2	87	432	436	441	445	449	454	458	463	467	471
9 3.6	88	476	480	484	489	493	498	502	506	511	515
	89	520	524	528	533	537	542	546	550	555	559
	990	564	568	572	577	581	585	590	594	599	603
	91	607	612	616	621	625	629	634	638	642	647
	92	651	656	660	664	669	673	677	682	686	691
	93	695	699	704	708	712	717	721	726	730	734
	94	739	743	747	752	756	760	765	769	774	778
	95	782	787	791	795	800	804	808	813	817	822
	96	826	830	835	839	843	848	852	856	861	865
	97	870	874	878	883	887	891	896	900	904	909
	98	913	917	922	926	930	935	939	944	948	952
	99	99 957	961	965	970	974	978	983	987	991	996
	1000	00 000	004	009	013	017	022	026	030	035	039
Prop. Parts	N	0	1	2	3	4	5	6	7	8	9

′	′	L Sin	d	S	T	L Tan	c d	L Cot	L Cos	
0	0	———		———	———	———		———	0.00 000	60
1	1	6.46 373	30103	3.53 627	3.53 627	6.46 373	30103	3.53 627	0.00 000	59
2	2	6.76 476	17609	3.53 627	3.53 627	6.76 476	17609	3.23 524	0.00 000	58
3	3	6.94 085	12494	3.53 627	3.53 627	6.94 085	12494	3.05 915	0.00 000	57
4	4	7.06 579		3.53 627	3.53 627	7.06 579		2.93 421	0.00 000	56
5	5	7.16 270	9691	3.53 627	3.53 627	7.16 270	9691	2.83 730	0.00 000	55
6	6	7.24 188	7918	3.53 627	3.53 627	7.24 188	7918	2.75 812	0.00 000	54
7	7	7.30 882	6694	3.53 627	3.53 627	7.30 882	6694	2.69 118	0.00 000	53
8	8	7.36 682	5800	3.53 627	3.53 627	7.36 682	5800	2.63 318	0.00 000	52
9	9	7.41 797	5115	3.53 627	3.53 627	7.41 797	5115	2.58 203	0.00 000	51
10	10	7.46 373	4576	3.53 627	3.53 627	7.46 373	4576	2.53 627	0.00 000	50
11	11	7.50 512	4139	3.53 627	3.53 627	7.50 512	4139	2.49 488	0.00 000	49
12	12	7.54 291	3779	3.53 627	3.53 627	7.54 291	3779	2.45 709	0.00 000	48
13	13	7.57 767	3476	3.53 627	3.53 627	7.57 767	3476	2.42 233	0.00 000	47
14	14	7.60 985	3218	3.53 628	3.53 627	7.60 986	3219	2.39 014	0.00 000	46
15	15	7.63 982	2997	3.53 628	3.53 627	7.63 982	2996	2.36 018	0.00 000	45
16	16	7.66 784	2802	3.53 628	3.53 627	7.66 785	2803	2.33 215	0.00 000	44
17	17	7.69 417	2633	3.53 628	3.53 627	7.69 418	2633	2.30 582	9.99 999	43
18	18	7.71 900	2483	3.53 628	3.53 627	7.71 900	2482	2.28 100	9.99 999	42
19	19	7.74 248	2348	3.53 628	3.53 627	7.74 248	2348	2.25 752	9.99 999	41
20	20	7.76 475	2227	3.53 628	3.53 627	7.76 476	2228	2.23 524	9.99 999	40
21	21	7.78 594	2119	3.53 628	3.53 627	7.78 595	2119	2.21 405	9.99 999	39
22	22	7.80 615	2021	3.53 628	3.53 627	7.80 615	2020	2.19 385	9.99 999	38
23	23	7.82 545	1930	3.53 628	3.53 627	7.82 546	1931	2.17 454	9.99 999	37
24	24	7.84 393	1848	3.53 628	3.53 627	7.84 394	1848	2.15 606	9.99 999	36
25	25	7.86 166	1773	3.53 628	3.53 627	7.86 167	1773	2.13 833	9.99 999	35
26	26	7.87 870	1704	3.53 628	3.53 627	7.87 871	1704	2.12 129	9.99 999	34
27	27	7.89 509	1639	3.53 628	3.53 626	7.89 510	1639	2.10 490	9.99 999	33
28	28	7.91 088	1579	3.53 628	3.53 626	7.91 089	1579	2.08 911	9.99 999	32
29	29	7.92 612	1524	3.53 628	3.53 626	7.92 613	1524	2.07 387	9.99 998	31
30	30	7.94 084	1472	3.53 628	3.53 626	7.94 086	1473	2.05 914	9.99 998	30
31	31	7.95 508	1424	3.53 628	3.53 626	7.95 510	1424	2.04 490	9.99 998	29
32	32	7.96 887	1379	3.53 628	3.53 626	7.96 889	1379	2.03 111	9.99 998	28
33	33	7.98 223	1336	3.53 628	3.53 626	7.98 225	1336	2.01 775	9.99 998	27
34	34	7.99 520	1297	3.53 628	3.53 626	7.99 522	1297	2.00 478	9.99 998	26
35	35	8.00 779	1259	3.53 628	3.53 626	8.00 781	1259	1.99 219	9.99 998	25
36	36	8.02 002	1223	3.53 628	3.53 626	8.02 004	1223	1.97 996	9.99 998	24
37	37	8.03 192	1190	3.53 628	3.53 626	8.03 194	1190	1.96 806	9.99 997	23
38	38	8.04 350	1158	3.53 628	3.53 626	8.04 353	1159	1.95 647	9.99 997	22
39	39	8.05 478	1128	3.53 628	3.53 626	8.05 481	1128	1.94 519	9.99 997	21
40	40	8.06 578	1100	3.53 628	3.53 625	8.06 581	1100	1.93 419	9.99 997	20
41	41	8.07 650	1072	3.53 628	3.53 625	8.07 653	1072	1.92 347	9.99 997	19
42	42	8.08 696	1046	3.53 628	3.53 625	8.08 700	1047	1.91 300	9.99 997	18
43	43	8.09 718	1022	3.53 629	3.53 625	8.09 722	1022	1.90 278	9.99 997	17
44	44	8.10 717	999	3.53 629	3.53 625	8.10 720	998	1.89 280	9.99 996	16
45	45	8.11 693	976	3.53 629	3.53 625	8.11 696	976	1.88 304	9.99 996	15
46	46	8.12 647	954	3.53 629	3.53 625	8.12 651	955	1.87 349	9.99 996	14
47	47	8.13 581	934	3.53 629	3.53 625	8.13 585	934	1.86 415	9.99 996	13
48	48	8.14 495	914	3.53 629	3.53 625	8.14 500	915	1.85 500	9.99 996	12
49	49	8.15 391	896	3.53 629	3.53 624	8.15 395	895	1.84 605	9.99 996	11
50	50	8.16 268	877	3.53 629	3.53 624	8.16 273	878	1.83 727	9.99 995	10
51	51	8.17 128	860	3.53 629	3.53 624	8.17 133	860	1.82 867	9.99 995	9
52	52	8.17 971	843	3.53 629	3.53 624	8.17 976	843	1.82 024	9.99 995	8
53	53	8.18 798	827	3.53 629	3.53 624	8.18 804	828	1.81 196	9.99 995	7
54	54	8.19 610	812	3.53 629	3.53 624	8.19 616	812	1.80 384	9.99 995	6
55	55	8.20 407	797	3.53 629	3.53 624	8.20 413	797	1.79 587	9.99 994	5
56	56	8.21 189	782	3.53 629	3.53 624	8.21 195	782	1.78 805	9.99 994	4
57	57	8.21 958	769	3.53 629	3.53 623	8.21 964	769	1.78 036	9.99 994	3
58	58	8.22 713	755	3.53 629	3.53 623	8.22 720	756	1.77 280	9.99 994	2
59	59	8.23 456	743	3.53 630	3.53 623	8.23 462	742	1.76 538	9.99 994	1
60	60	8.24 186	730	3.53 630	3.53 623	8.24 192	730	1.75 808	9.99 993	0
		L Cos	d			L Cot	c d	L Tan	L Sin	′

′	′	L Sin	d	S	T	L Tan	c d	L Cot	L Cos	
60	0	8.24 186	717	3.53 630	3.53 623	8.24 192	718	1.75 808	9.99 993	60
61	1	8.24 903	706	3.53 630	3.53 623	8.24 910	706	1.75 090	9.99 993	59
62	2	8.25 609	695	3.53 630	3.53 623	8.25 616	696	1.74 384	9.99 993	58
63	3	8.26 304	684	3.53 630	3.53 623	8.26 312	684	1.73.688	9.99 993	57
64	4	8.26 988	673	3.53 630	3.53 622	8.26 996	673	1.73 004	9.99 992	56
65	5	8.27 661	663	3.53 630	3.53 622	8.27 669	663	1.72 331	9.99 992	55
66	6	8.28 324	653	3.53 630	3.53 622	8.28 332	654	1.71 668	9.99 992	54
67	7	8.28 977	644	3.53 630	3.53 622	8.28 986	643	1.71 014	9.99 992	53
68	8	8.29 621	634	3.53 630	3.53 622	8.29 629	634	1.70 371	9.99 992	52
69	9	8.30 255	624	3.53 630	3.53 622	8.30 263	625	1.69 737	9.99 991	51
70	10	8.30 879	616	3.53 630	3.53 621	8.30 888	617	1.69 112	9.99 991	50
71	11	8.31 495	608	3.53 630	3.53 621	8.31 505	607	1.68 495	9.99 991	49
72	12	8.32 103	599	3.53 631	3.53 621	8.32 112	599	1.67 888	9.99 990	48
73	13	8.32 702	590	3.53 631	3.53 621	8.32 711	591	1.67 289	9.99 990	47
74	14	8.33 292	583	3.53 631	3.53 621	8.33 302	584	1.66 698	9.99 990	46
75	15	8.33 875	575	3.53 631	3.53 620	8.33 886	575	1.66 114	9.99 990	45
76	16	8.34 450	568	3.53 631	3.53 620	8.34 461	568	1.65 539	9.99 989	44
77	17	8.35 018	560	3.53 631	3.53 620	8.35 029	561	1.64 971	9.99 989	43
78	18	8.35 578	553	3.53 631	3.53 620	8.35 590	553	1.64 410	9.99 989	42
79	19	8.36 131	547	3.53 631	3.53 620	8.36 143	546	1.63 857	9.99 989	41
80	20	8.36 678	539	3.53 631	3.53 620	8.36 689	540	1.63 311	9.99 988	40
81	21	8.37 217	533	3.53 631	3.53 619	8.37 229	533	1.62 771	9.99 988	39
82	22	8.37 750	526	3.53 632	3.53 619	8.37 762	527	1.62 238	9.99 988	38
83	23	8.38 276	520	3.53 632	3.53 619	8.38 289	520	1.61 711	9.99 987	37
84	24	8.38 796	514	3.53 632	3.53 619	8.38 809	514	1.61 191	9.99 987	36
85	25	8.39 310	508	3.53 632	3.53 619	8.39 323	509	1.60 677	9.99 987	35
86	26	8.39 818	502	3.53 632	3.53 618	8.39 832	502	1.60 168	9.99 986	34
87	27	8.40 320	496	3.53 632	3.53 618	8.40 334	496	1.59 666	9.99 986	33
88	28	8.40 816	491	3.53 632	3.53 618	8.40 830	491	1.59 170	9.99 986	32
89	29	8.41 307	485	3.53 632	3.53 618	8.41 321	486	1.58 679	9.99 985	31
90	30	8.41 792	480	3.53 632	3.53 617	8.41 807	480	1.58 193	9.99 985	30
91	31	8.42 272	474	3.53 632	3.53 617	8.42 287	475	1.57 713	9.99 985	29
92	32	8.42 746	470	3.53 633	3.53 617	8.42 762	470	1.57 238	9.99 984	28
93	33	8.43 216	464	3.53 633	3.53 617	8.43 232	464	1.56 768	9.99 984	27
94	34	8.43 680	459	3.53 633	3.53 617	8.43 696	460	1.56 304	9.99 984	26
95	35	8.44 139	455	3.53 633	3.53 616	8.44 156	455	1.55 844	9.99 983	25
96	36	8.44 594	450	3.53 633	3.53 616	8.44 611	450	1.55 389	9.99 983	24
97	37	8.45 044	445	3.53 633	3.53 616	8.45 061	446	1.54 939	9.99 983	23
98	38	8.45 489	441	3.53 633	3.53 616	8.45 507	441	1.54 493	9.99 982	22
99	39	8.45 930	436	3.53 633	3.53 615	8.45 948	437	1.54 052	9.99 982	21
100	40	8.46 366	433	3.53 634	3.53 615	8.46 385	432	1.53 615	9.99 982	20
101	41	8.46 799	427	3.53 634	3.53 615	8.46 817	428	1.53 183	9.99 981	19
102	42	8.47 226	424	3.53 634	3.53 615	8.47 245	424	1.52 755	9.99 981	18
103	43	8.47 650	419	3.53 634	3.53 614	8.47 669	420	1.52 331	9.99 981	17
104	44	8.48 069	416	3.53 634	3.53 614	8.48 089	416	1.51 911	9.99 980	16
105	45	8.48 485	411	3.53 634	3.53 614	8.48 505	412	1.51 495	9.99 980	15
106	46	8.48 896	408	3.53 634	3.53 614	8.48 917	408	1.51 083	9.99 979	14
107	47	8.49 304	404	3.53 634	3.53 613	8.49 325	404	1.50 675	9.99 979	13
108	48	8.49 708	400	3.53 635	3.53 613	8.49 729	401	1.50 271	9.99 979	12
109	49	8.50 108	396	3.53 635	3.53 613	8.50 130	397	1.49 870	9.99 978	11
110	50	8.50 504	393	3.53 635	3.53 613	8.50 527	393	1.49 473	9.99 978	10
111	51	8.50 897	390	3.53 635	3.53 612	8.50 920	390	1.49 080	9.99 977	9
112	52	8.51 287	386	3.53 635	3.53 612	8.51 310	386	1.48 690	9.99 977	8
113	53	8.51 673	382	3.53 635	3.53 612	8.51 696	383	1.48 304	9.99 977	7
114	54	8.52 055	379	3.53 635	3.53 611	8.52 079	380	1.47 921	9.99 976	6
115	55	8.52 434	376	3.53 635	3.53 611	8.52 459	376	1.47 541	9.99 976	5
116	56	8.52 810	373	3.53 636	3.53 611	8.52 835	373	1.47 165	9.99 975	4
117	57	8.53 183	369	3.53 636	3.53 611	8.53 208	370	1.46 792	9.99 975	3
118	58	8.53 552	367	3.53 636	3.53 610	8.53 578	367	1.46 422	9.99 974	2
119	59	8.53 919	363	3.53 636	3.53 610	8.53 945	363	1.46 055	9.99 974	1
120	60	8.54 282		3.53 636	3.53 610	8.54 308		1.45 692	9.99 974	0
		L Cos	d			L Cot	c d	L Tan	L Sin	′

′	′	L Sin	d	S	T	L Tan	c d	L Cot	L Cos	
120	**0**	8.54 282	360	3.53 636	3.53 610	8.54 308	361	1.45 692	9.99 974	**60**
121	1	8.54 642	357	3.53 636	3.53 609	8.54 669	358	1.45 331	9.99 973	59
122	2	8.54 999	355	3.53 637	3.53 609	8.55 027	355	1.44 973	9.99 973	58
123	3	8.55 354	351	3.53 637	3.53 609	8.55 382	352	1.44 618	9.99 972	57
124	4	8.55 705	349	3.53 637	3.53 609	8.55 734	349	1.44 266	9.99 972	56
125	5	8.56 054	346	3.53 637	3.53 608	8.56 083	346	1.43 917	9.99 971	55
126	6	8.56 400	343	3.53 637	3.53 608	8.56 429	344	1.43 571	9.99 971	54
127	7	8.56 743	341	3.53 637	3.53 608	8.56 773	341	1.43 227	9.99 970	53
128	8	8.57 084	337	3.53 637	3.53 607	8.57 114	338	1.42 886	9.99 970	52
129	9	8.57 421	336	3.53 638	3.53 607	8.57 452	336	1.42 548	9.99 969	51
130	**10**	8.57 757	332	3.53 638	3.53 607	8.57 788	333	1.42 212	9.99 969	**50**
131	11	8.58 089	330	3.53 638	3.53 606	8.58 121	330	1.41 879	9.99 968	49
132	12	8.58 419	328	3.53 638	3.53 606	8.58 451	328	1.41 549	9.99 968	48
133	13	8.58 747	325	3.53 638	3.53 606	8.58 779	326	1.41 221	9.99 967	47
134	14	8.59 072	323	3.53 638	3.53 605	8.59 105	323	1.40 895	9.99 967	46
135	15	8.59 395	320	3.53 639	3.53 605	8.59 428	321	1.40 572	9.99 967	45
136	16	8.59 715	318	3.53 639	3.53 605	8.59 749	319	1.40 251	9.99 966	44
137	17	8.60 033	316	3.53 639	3.53 604	8.60 068	316	1.39 932	9.99 966	43
138	18	8.60 349	313	3.53 639	3.53 604	8.60 384	314	1.39 616	9.99 965	42
139	19	8.60 662	311	3.53 639	3.53 604	8.60 698	311	1.39 302	9.99 964	41
140	**20**	8.60 973	309	3.53 639	3.53 603	8.61 009	310	1.38 991	9.99 964	**40**
141	21	8.61 282	307	3.53 640	3.53 603	8.61 319	307	1.38 681	9.99 963	39
142	22	8.61 589	305	3.53 640	3.53 603	8.61 626	305	1.38 374	9.99 963	38
143	23	8.61 894	302	3.53 640	3.53 602	8.61 931	303	1.38 069	9.99 962	37
144	24	8.62 196	301	3.53 640	3.53 602	8.62 234	301	1.37 766	9.99 962	36
145	25	8.62 497	298	3.53 640	3.53 602	8.62 535	299	1.37 465	9.99 961	35
146	26	8.62 795	296	3.53 640	3.53 601	8.62 834	297	1.37 166	9.99 961	34
147	27	8.63 091	294	3.53 641	3.53 601	8.63 131	295	1.36 869	9.99 960	33
148	28	8.63 385	293	3.53 641	3.53 601	8.63 426	292	1.36 574	9.99 960	32
149	29	8.63 678	290	3.53 641	3.53 600	8.63 718	291	1.36 282	9.99 959	31
150	**30**	8.63 968	288	3.53 641	3.53 600	8.64 009	289	1.35 991	9.99 959	**30**
151	31	8.64 256	287	3.53 641	3.53 599	8.64 298	287	1.35 702	9.99 958	29
152	32	8.64 543	284	3.53 642	3.53 599	8.64 585	285	1.35 415	9.99 958	28
153	33	8.64 827	283	3.53 642	3.53 599	8.64 870	284	1.35 130	9.99 957	27
154	34	8.65 110	281	3.53 642	3.53 598	8.65 154	281	1.34 846	9.99 956	26
155	35	8.65 391	279	3.53 642	3.53 598	8.65 435	280	1.34 565	9.99 956	25
156	36	8.65 670	277	3.53 642	3.53 598	8.65 715	278	1.34 285	9.99 955	24
157	37	8.65 947	276	3.53 642	3.53 597	8.65 993	276	1.34 007	9.99 955	23
158	38	8.66 223	274	3.53 643	3.53 597	8.66 269	274	1.33 731	9.99 954	22
159	39	8.66 497	272	3.53 643	3.53 596	8.66 543	273	1.33 457	9.99 954	21
160	**40**	8.66 769	270	3.53 643	3.53 596	8.66 816	271	1.33 184	9.99 953	**20**
161	41	8.67 039	269	3.53 643	3.53 596	8.67 087	269	1.32 913	9.99 952	19
162	42	8.67 308	267	3.53 643	3.53 595	8.67 356	268	1.32 644	9.99 952	18
163	43	8.67 575	266	3.53 644	3.53 595	8.67 624	266	1.32 376	9.99 951	17
164	44	8.67 841	263	3.53 644	3.53 594	8.67 890	264	1.32 110	9.99 951	16
165	45	8.68 104	263	3.53 644	3.53 594	8.68 154	263	1.31 846	9.99 950	15
166	46	8.68 367	260	3.53 644	3.53 594	8.68 417	261	1.31 583	9.99 949	14
167	47	8.68 627	259	3.53 644	3.53 593	8.68 678	260	1.31 322	9.99 949	13
168	48	8.68 886	258	3.53 645	3.53 593	8.68 938	258	1.31 062	9.99 948	12
169	49	8.69 144	256	3.53 645	3.53 592	8.69 196	257	1.30 804	9.99 948	11
170	**50**	8.69 400	254	3.53 645	3.53 592	8.69 453	255	1.30 547	9.99 947	**10**
171	51	8.69 654	253	3.53 645	3.53 592	8.69 708	254	1.30 292	9.99 946	9
172	52	8.69 907	252	3.53 646	3.53 591	8.69 962	252	1.30 038	9.99 946	8
173	53	8.70 159	250	3.53 646	3.53 591	8.70 214	251	1.29 786	9.99 945	7
174	54	8.70 409	249	3.53 646	3.53 590	8.70 465	249	1.29 535	9.99 944	6
175	55	8.70 658	247	3.53 646	3.53 590	8.70 714	248	1.29 286	9.99 944	5
176	56	8.70 905	246	3.53 646	3.53 589	8.70 962	246	1.29038	9.99 943	4
177	57	8.71 151	244	3.53 647	3.53 589	8.71 208	245	1.28 792	9.99 942	3
178	58	8.71 395	243	3.53 647	3.53 589	8.71 453	244	1.28 547	9.99 942	2
179	59	8.71 638	242	3.53 647	3.53 588	8.71 697	243	1.28 303	9.99 941	1
180	**60**	8.71 880		3.53 647	3.53 588	8.71 940		1.28 060	9.99 940	**0**
		L Cos	d			L Cot	c d	L Tan	L Sin	′

Proportional Parts				′	L Sin	d	L Tan	c d	L Cot	L Cos	
				0	8.71 880	240	8.71 940	241	1.28 060	9.99 940	60
	239	237	234	232							
1	23.9	23.7	23.4	23.2	1	8.72 120	239	8.72 181	239	1.27 819	9.99 940	59
2	47.8	47.4	46.8	46.4	2	8.72 359	238	8.72 420	239	1.27 580	9.99 939	58
3	71.7	71.1	70.2	69.6	3	8.72 597	237	8.72 659	237	1.27 341	9.99 938	57
4	95.6	94.8	93.6	92.8	4	8.72 834	235	8.72 896	236	1.27 104	9.99 938	56
5	119.5	118.5	117.0	116.0	5	8.73 069	234	8.73 132	234	1.26 868	9.99 937	55
6	143.4	142.2	140.4	139.2	6	8.73 303	232	8.73 366	234	1.26 634	9.99 936	54
7	167.3	165.9	163.8	162.4	7	8.73 535	232	8.73 600	232	1.26 400	9.99 936	53
8	191.2	189.6	187.2	185.6	8	8.73 767	230	8.73 832	231	1.26 168	9.99 935	52
9	215.1	213.3	210.6	208.8	9	8.73 997	229	8.74 063	229	1.25 937	9.99 934	51
	229	226	224	222	10	8.74 226	228	8.74 292	229	1.25 708	9.99 934	50
1	22.9	22.6	22.4	22.2	11	8.74 454	226	8.74 521	227	1.25 479	9.99 933	49
2	45.8	45.2	44.8	44.4	12	8.74 680	226	8.74 748	226	1.25 252	9.99 932	48
3	68.7	67.8	67.2	66.6	13	8.74 906	224	8.74 974	225	1.25 026	9.99 932	47
4	91.6	90.4	89.6	88.8	14	8.75 130	223	8.75 199	224	1.24 801	9.99 931	46
5	114.5	113.0	112.0	111.0	15	8.75 353	222	8.75 423	222	1.24 577	9.99 930	45
6	137.4	135.6	134.4	133.2	16	8.75 575	220	8.75 645	222	1.24 355	9.99 929	44
7	160.3	158.2	156.8	155.4	17	8.75 795	220	8.75 867	220	1.24 133	9.99 929	43
8	183.2	180.8	179.2	177.6	18	8.76 015	219	8.76 087	219	1.23 913	9.99 928	42
9	206.1	203.4	201.6	199.8	19	8.76 234	217	8.76 306	219	1.23 694	9.99 927	41
	220	219	216	214	20	8.76 451	216	8.76 525	217	1.23 475	9.99 926	40
1	22.0	21.9	21.6	21.4	21	8.76 667	216	8.76 742	216	1.23 258	9.99 926	39
2	44.0	43.8	43.2	42.8	22	8.76 883	214	8.76 958	215	1.23 042	9.99 925	38
3	66.0	65 7	64.8	64.2	23	8.77 097	213	8.77 173	214	1.22 827	9.99 924	37
4	88.0	87.6	86.4	85.6	24	8.77 310	212	8.77 387	213	1.22 613	9.99 923	36
5	110.0	109.5	108.0	107.0	25	8.77 522	211	8.77 600	211	1.22 400	9.99 923	35
6	132.0	131.4	129.6	128.4	26	8.77 733	210	8.77 811	211	1.22 189	9.99 922	34
7	154.0	153.3	151.2	149.8	27	8.77 943	209	8.78 022	210	1.21 978	9.99 921	33
8	176.0	175.2	172.8	171.2	28	8.78 152	208	8.78 232	209	1.21 768	9.99 920	32
9	198.0	197.1	194.4	192.6	29	8.78 360	208	8.78 441	208	1.21 559	9.99 920	31
	213	211	208	206	30	8.78 568	206	8.78 649	206	1.21 351	9.99 919	30
1	21.3	21.1	20.8	20.6	31	8.78 774	206	8.78 855	206	1.21 145	9.99 918	29
2	42.6	42.2	41.6	41.2	32	8.78 979	205	8.79 061	205	1.20 939	9.99 917	28
3	63.9	63.3	62.4	61.8	33	8.79 183	204	8.79 266	204	1.20 734	9.99 917	27
4	85.2	84.4	83.2	82.4	34	8.79 386	203	8.79 470	203	1.20 530	9.99 916	26
5	106.5	105.5	104.0	103.0	35	8.79 588	202	8.79 673	202	1.20 327	9.99 915	25
6	127.8	126.6	124.8	123.6	36	8.79 789	201	8.79 875	201	1.20 125	9.99 914	24
7	149.1	147.7	145.6	144.2	37	8.79 990	199	8.80 076	201	1.19 924	9.99 913	23
8	170.4	168.8	166.4	164.8	38	8.80 189	199	8.80 277	199	1.19 723	9.99 913	22
9	191.7	189.9	187.2	185.4	39	8.80 388	197	8.80 476	198	1.19 524	9.99 912	21
	203	201	199	198	40	8.80 585	197	8.80 674	198	1.19 326	9.99 911	20
1	20.3	20.1	19.9	19.8	41	8.80 782	196	8.80 872	196	1.19 128	9.99 910	19
2	40.6	40.2	39.8	39.6	42	8.80 978	195	8.81 068	196	1.18 932	9.99 909	18
3	60.9	60.3	59.7	59.4	43	8.81 173	194	8.81 264	195	1.18 736	9.99 909	17
4	81.2	80.4	79.6	79.2	44	8.81 367	193	8.81 459	194	1.18 541	9.99 908	16
5	101.5	100.5	99.5	99.0	45	8.81 560	192	8.81 653	193	1.18 347	9.99 907	15
6	121.8	120.6	119.4	118.8	46	8.81 752	192	8.81 846	192	1.18 154	9.99 906	14
7	142.1	140.7	139.3	138.6	47	8.81 944	190	8.82 038	192	1.17 962	9.99 905	13
8	162.4	160.8	159.2	158.4	48	8.82 134	190	8.82 230	190	1.17 770	9.99 904	12
9	182.7	180.9	179.1	178.2	49	8.82 324	189	8.82 420	190	1.17 580	9.99 904	11
	196	192	190	188	50	8.82 513	188	8.82 610	189	1.17 390	9.99 903	10
1	19.6	19.2	19.0	18.8	51	8.82 701	187	8.82 799	188	1.17 201	9.99 902	9
2	39.2	38.4	38.0	37.6	52	8.82 888	187	8.82 987	188	1.17 013	9.99 901	8
3	58.8	57.6	57.0	56.4	53	8.83 075	186	8.83 175	186	1.16 825	9.99 900	7
4	78.4	76.8	76.0	75.2	54	8.83 261	185	8.83 361	186	1.16 639	9.99 899	6
5	98.0	96.0	95.0	94.0	55	8.83 446	184	8.83 547	185	1.16 453	9.99 898	5
6	117.6	115.2	114.0	112.8	56	8.83 630	183	8.83 732	184	1.16 268	9.99 898	4
7	137.2	134.4	133.0	131.6	57	8.83 813	183	8.83 916	184	1.16 084	9.99 897	3
8	156.8	153.6	152.0	150.4	58	8.83 996	181	8.84 100	182	1.15 900	9.99 896	2
9	176.4	172.8	171.0	169.2	59	8.84 177	181	8.84 282	182	1.15 718	9.99 895	1
	186	184	182	181	60	8.84 358		8.84 464		1.15 536	9.99 894	0
1	18.6	18.4	18.2	18.1								
2	37.2	36.8	36.4	36.2								
3	55.8	55.2	54.6	54.3								
4	74.4	73.6	72.8	72.4								
5	93.0	92.0	91.0	90.5								
6	111.6	110.4	109.2	108.6								
7	130.2	128.8	127.4	126.7								
8	148.8	147.2	145.6	144.8								
9	167.4	165.6	163.8	162.9								
Proportional Parts					L Cos	d	L Cot	c d	L Tan	L Sin	′

′	L Sin	d	L Tan	c d	L Cot	L Cos		Proportional Parts
0	8.84 358	181	8.84 464	182	1.15 536	9.99 894	60	
1	8.84 539	179	8.84 646	180	1.15 354	9.99 893	59	180 179 177 176
2	8.84 718	179	8.84 826	180	1.15 174	9.99 892	58	1 18.0 17.9 17.7 17.6
3	8.84 897	178	8.85 006	179	1.14 994	9.99 891	57	2 36.0 35.8 35.4 35.2
4	8.85 075	177	8.85 185	178	1.14 815	9.99 891	56	3 54.0 53.7 53.1 52.8
5	8.85 252	177	8.85 363	177	1.14 637	9.99 890	55	4 72.0 71.6 70.8 70.4
6	8.85 429	176	8.85 540	177	1.14 460	9.99 889	54	5 90.0 89.5 88.5 88.0
7	8.85 605	175	8.85 717	176	1.14 283	9.99 888	53	6 108.0 107.4 106.2 105.6
8	8.85 780	175	8.85 893	176	1.14 107	9.99 887	52	7 126.0 125.3 123.9 123.2
9	8.85 955	173	8.86 069	174	1.13 931	9.99 886	51	8 144.0 143.2 141.6 140.8
10	8.86 128	173	8.86 243	174	1.13 757	9.99 885	50	9 162.0 161.1 159.3 158.4
11	8.86 301	173	8.86 417	174	1.13 583	9.99 884	49	
12	8.86 474	171	8.86 591	172	1.13 409	9.99 883	48	175 174 173 172
13	8.86 645	171	8.86 763	172	1.13 237	9.99 882	47	1 17.5 17.4 17.3 17.2
14	8.86 816	171	8.86 935	171	1.13 065	9.99 881	46	2 35.0 34.8 34.6 34.4
15	8.86 987	169	8.87 106	171	1.12 894	9.99 880	45	3 52.5 52.2 51.9 51.6
16	8.87 156	169	8.87 277	170	1.12 723	9.99 879	44	4 70.0 69.6 69.2 68.8
17	8.87 325	169	8.87 447	169	1.12 553	9.99 879	43	5 87.5 87.0 86.5 86.0
18	8.87 494	167	8.87 616	169	1.12 384	9.99 878	42	6 105.0 104.4 103.8 103.2
19	8.87 661	168	8.87 785	168	1.12 215	9.99 877	41	7 122.5 121.8 121.1 120.4
20	8.87 829	166	8.87 953	167	1.12 047	9.99 876	40	8 140.0 139.2 138.4 137.6
21	8.87 995	166	8.88 120	167	1.11 880	9.99 875	39	9 157.5 156.6 155.7 154.8
22	8.88 161	165	8.88 287	166	1.11 713	9.99 874	38	
23	8.88 326	164	8.88 453	165	1.11 547	9.99 873	37	171 169 168 167
24	8.88 490	164	8.88 618	165	1.11 382	9.99 872	36	1 17.1 16.9 16.8 16.7
25	8.88 654	163	8.88 783	165	1.11 217	9.99 871	35	2 34.2 33.8 33.6 33.4
26	8.88 817	163	8.88 948	163	1.11 052	9.99 870	34	3 51.3 50.7 50.4 50.1
27	8.88 980	162	8.89 111	163	1.10 889	9.99 869	33	4 68.4 67.6 67.2 66.8
28	8.89 142	162	8.89 274	163	1.10 726	9.99 868	32	5 85.5 84.5 84.0 83.5
29	8.89 304	160	8.89 437	161	1.10 563	9.99 867	31	6 102.6 101.4 100.8 100.2
30	8.89 464	161	8.89 598	162	1.10 402	9.99 866	30	7 119.7 118.3 117.6 116.9
31	8.89 625	159	8.89 760	160	1.10 240	9.99 865	29	8 136.8 135.2 134.4 133.6
32	8.89 784	159	8.89 920	160	1.10 080	9.99 864	28	9 153.9 152.1 151.2 150.3
33	8.89 943	159	8.90 080	160	1.09 920	9.99 863	27	
34	8.90 102	158	8.90 240	159	1.09 760	9.99 862	26	166 165 164 163
35	8.90 260	157	8.90 399	158	1.09 601	9.99 861	25	
36	8.90 417	157	8.90 557	158	1.09 443	9.99 860	24	1 16.6 16.5 16.4 16.3
37	8.90 574	156	8.90 715	157	1.09 285	9.99 859	23	2 33.2 33.0 32.8 32.6
38	8.90 730	155	8.90 872	157	1.09 128	9.99 858	22	3 49.8 49.5 49.2 48.9
39	8.90 885	155	8.91 029	156	1.08 971	9.99 857	21	4 66.4 66.0 65.6 65.2
40	8.91 040	155	8.91 185	155	1.08 815	9.99 856	20	5 83.0 82.5 82.0 81.5
41	8.91 195	154	8.91 340	155	1.08 660	9.99 855	19	6 99.6 99.0 98.4 97.8
42	8.91 349	153	8.91 495	155	1.08 505	9.99 854	18	7 116.2 115.5 114.8 114.1
43	8.91 502	153	8.91 650	153	1.08 350	9.99 853	17	8 132.8 132.0 131.2 130.4
44	8.91 655	152	8.91 803	153	1.08 197	9.99 852	16	9 149.4 148.5 147.6 146.7
45	8.91 807	152	8.91 957	154	1.08 043	9.99 851	15	
46	8.91 959	151	8.92 110	153	1.07 890	9.99 850	14	162 160 159 158
47	8.92 110	151	8.92 262	152	1.07 738	9.99 848	13	1 16.2 16.0 15.9 15.8
48	8.92 261	150	8.92 414	152	1.07 586	9.99 847	12	2 32.4 32.0 31.8 31.6
49	8.92 411	150	8.92 565	151	1.07 435	9.99 846	11	3 48.6 48.0 47.7 47.4
50	8.92 561	149	8.92 716	151	1.07 284	9.99 845	10	4 64.8 64.0 63.6 63.2
51	8.92 710	149	8.92 866	150	1.07 134	9.99 844	9	5 81.0 80.0 79.5 79.0
52	8.92 859	148	8.93 016	150	1.06 984	9.99 843	8	6 97.2 96.0 95.4 94.8
53	8.93 007	147	8.93 165	149	1.06 835	9.99 842	7	7 113.4 112.0 111.3 110.6
54	8.93 154	147	8.93 313	148	1.06 687	9.99 841	6	8 129.6 128.0 127.2 126.4
55	8.93 301	147	8.93 462	149	1.06 538	9.99 840	5	9 145.8 144.0 143.1 142.2
56	8.93 448	146	8.93 609	147	1.06 391	9.99 839	4	
57	8.93 594	146	8.93 756	147	1.06 244	9.99 838	3	157 156 155 153
58	8.93 740	145	8.93 903	147	1.06 097	9.99 837	2	
59	8.93 885	145	8.94 049	146	1.05 951	9.99 836	1	1 15.7 15.6 15.5 15.3
60	8.94 030		8.94 195		1.05 805	9.99 834	0	2 31.4 31.2 31.0 30.6
	L Cos	d	L Cot	c d	L Tan	L Sin	′	3 47.1 46.8 46.5 45.9
								4 62.8 62.4 62.0 61.2
								5 78.5 78.0 77.5 76.5
								6 94.2 93.6 93.0 91.8
								7 109.9 109.2 108.5 107.1
								8 125.6 124.8 124.0 122.4
								9 141.3 140.4 139.5 137.7
								152 151 150 149
								1 15.2 15.1 15.0 14.9
								2 30.4 30.2 30.0 29.8
								3 45.6 45.3 45.0 44.7
								4 60.8 60.4 60.0 59.6
								5 76.0 75.5 75.0 74.5
								6 91.2 90.6 90.0 89.4
								7 106.4 105.7 105.0 104.3
								8 121.6 120.8 120.0 119.2
								9 136.8 135.9 135.0 134.1
								Proportional Parts

Proportional Parts				′	L Sin	d	L Tan	c d	L Cot	L Cos	
				0	8.94 030	144	8.94 195	145	1.05 805	9.99 834	60
	147	**146**	**145**	**144**							
1	14.7	14.6	14.5	14.4	1	8.94 174	143	8.94 340	145	1.05 660	9.99 833	59
2	29.4	29.2	29.0	28.8	2	8.94 317	144	8.94 485	145	1.05 515	9.99 832	58
3	44.1	43.8	43.5	43.2	3	8.94 461	142	8.94 630	143	1.05 370	9.99 831	57
4	58.8	58.4	58.0	57.6	4	8.94 603	143	8.94 773		1.05 227	9.99 830	56
5	73.5	73.0	72.5	72.0	5	8.94 746	141	8.94 917	144	1.05 083	9.99 829	55
6	88.2	87.6	87.0	86.4	6	8.94 887	142	8.95 060	143	1.04 940	9.99 828	54
7	102.9	102.2	101.5	100.8	7	8.95 029		8.95 202	142	1.04 798	9.99 827	53
8	117.6	116.8	116.0	115.2	8	8.95 170	141	8.95 344	142	1.04 656	9.99 825	52
9	132.3	131.4	130.5	129.6	9	8.95 310	140	8.95 486	141	1.04 514	9.99 824	51
	143	**142**	**141**	**140**	**10**	8.95 450	140	8.95 627	140	1.04 373	9.99 823	**50**
1	14.3	14.2	14.1	14.0	11	8.95 589	139	8.95 767		1.04 233	9.99 822	49
2	28.6	28.4	28.2	28.0	12	8.95 728	139	8.95 908	141	1.04 092	9.99 821	48
3	42.9	42.6	42.3	42.0	13	8.95 867	139	8.96 047	139	1.03 953	9.99 820	47
4	57.2	56.8	56.4	56.0			138		140			
5	71.5	71.0	70.5	70.0	14	8.96 005		8.96 187		1.03 813	9.99 819	46
6	85.8	85.2	84.6	84.0	15	8.96 143	138	8.96 325	138	1.03 675	9.99 817	45
7	100.1	99.4	98.7	98.0	16	8.96 280	137	8.96 464	139	1.03 536	9.99 816	44
8	114.4	113.6	112.8	112.0			137		138			
9	128.7	127.8	126.9	126.0	17	8.96 417		8.96 602		1.03 398	9.99 815	43
	139	**138**	**137**	**136**	18	8.96 553	136	8.96 739	137	1.03 261	9.99 814	42
1	13.9	13.8	13.7	13.6	19	8.96 689	136	8.96 877	138	1.03 123	9.99 813	41
2	27.8	27.6	27.4	27.2	**20**	8.96 825	136	8.97 013	136	1.02 987	9.99 812	**40**
3	41.7	41.4	41.1	40.8	21	8.96 960	135	8.97 150	137	1.02 850	9.99 810	39
4	55.6	55.2	54.8	54.4	22	8.97 095	135	8.97 285	135	1.02 715	9.99 809	38
5	69.5	69.0	68.5	68.0	23	8.97 229	134	8.97 421	136	1.02 579	9.99 808	37
6	83.4	82.8	82.2	81.6			134		135			
7	97.3	96.6	95.9	95.2	24	8.97 363		8.97 556		1.02 444	9.99 807	**36**
8	111.2	110.4	109.6	108.8	25	8.97 496	133	8.97 691	135	1.02 309	9.99 806	35
9	125.1	124.2	123.3	122 4	26	8.97 629	133	8.97 825	134	1.02 175	9.99 804	34
	135	**134**	**133**	**132**			133		134			
1	13.5	13.4	13.3	13.2	27	8.97 762		8.97 959		1.02 041	9.99 803	33
2	27.0	26.8	26.6	26.4	28	8.97 894	132	8.98 092	133	1.01 908	9.99 802	32
3	40.5	40.2	39.9	39.6	29	8.98 026	132	8.98 225	133	1.01 775	9.99 801	31
4	54.0	53.6	53.2	52.8	**30**	8.98 157	131	8.98 358	133	1.01 642	9.99 800	**30**
5	67.5	67.0	66.5	66.0	31	8.98 288	131	8.98 490	132	1.01 510	9.99 798	29
6	81.0	80.4	79.8	79.2	32	8.98 419	131	8.98 622	132	1.01 378	9.99 797	28
7	94.5	93.8	93.1	92.4	33	8.98 549	130	8.98 753	131	1.01 247	9.99 796	27
8	108.0	107.2	106.4	105.6			130		131			
9	121.5	120.6	119.7	118.8	34	8.98 679		8.98 884		1.01 116	9.99 795	26
	131	**130**	**129**	**128**	35	8.98 808	129	8.99 015	131	1.00 985	9.99 793	**25**
1	13.1	13.0	12.9	12.8	36	8.98 937	129	8.99 145	130	1.00 855	9.99 792	24
2	26.2	26.0	25.8	25.6			129		130			
3	39.3	39.0	38.7	38.4	37	8.99 066		8.99 275		1.00 725	9.99 791	23
4	52.4	52.0	51.6	51.2	38	8.99 194	128	8.99 405	130	1.00 595	9.99 790	22
5	65.5	65.0	64.5	64.0	39	8.99 322	128	8.99 534	129	1.00 466	9.99 788	21
6	78.6	78.0	77.4	76.8			128		128			
7	91.7	91.0	90.3	89.6	**40**	8.99 450	127	8.99 662	129	1.00 338	9.99 787	**20**
8	104.8	104.0	103.2	102.4	41	8.99 577		8.99 791	128	1.00 209	9.99 786	19
9	117.9	117.0	116.1	115.2	42	8.99 704	127	8.99 919	127	1.00 081	9.99 785	18
					43	8.99 830	126	9.00 046	128	0.99 954	9.99 783	17
	127	**126**	**125**	**124**			126					
1	12.7	12.6	12.5	12.4	44	8.99 956		9.00 174	127	0.99 826	9.99 782	16
2	25.4	25.2	25.0	24.8	45	9.00 082	126	9.00 301	126	0.99 699	9.99 781	15
3	38.1	37.8	37.5	37.2	46	9.00 207	125	9.00 427	126	0.99 573	9.99 780	14
4	50.8	50.4	50.0	49.6			125					
5	63.5	63.0	62.5	62.0	47	9.00 332		9.00 553	126	0.99 447	9.99 778	13
6	76.2	75.6	75.0	74.4	48	9.00 456	124	9.00 679	126	0.99 321	9.99 777	12
7	88.9	88.2	87.5	86.8	49	9.00 581	125	9.00 805	125	0.99 195	9.99 776	11
8	101.6	100.8	100.0	99.2			123					
9	114.3	113.4	112.5	111.6	**50**	9.00 704	124	9.00 930	125	0.99 070	9.99 775	**10**
					51	9.00 828		9.01 055	124	0.98 945	9.99 773	9
	123	**122**	**121**	**120**	52	9.00 951	123	9.01 179	124	0.98 821	9.99 772	8
1	12.3	12.2	12.1	12.0	53	9.01 074	123	9.01 303	124	0.98 697	9.99 771	7
2	24.6	24.4	24.2	24.0			122					
3	36.9	36.6	36.3	36.0	54	9.01 196		9.01 427	123	0.98 573	9.99 769	6
4	49.2	48.8	48.4	48.0	55	9.01 318	122	9.01 550	123	0.98 450	9.99 768	5
5	61.5	61.0	60.5	60.0	56	9.01 440	122	9.01 673	123	0.98 327	9.99 767	4
6	73.8	73.2	72.6	72.0			121					
7	86.1	85.4	84.7	84.0	57	9.01 561		9.01 796	122	0.98 204	9.99 765	3
8	98.4	97.6	96.8	96.0	58	9.01 682	121	9.01 918	122	0.98 082	9.99 764	2
9	110.7	109.8	108.9	108.0	59	9.01 803	121	9.02 040	122	0.97 960	9.99 763	1
					60	9.01 923	120	9.02 162		0.97 838	9.99 761	0
Proportional Parts					L Cos	d	L Cot	c d	L Tan	L Sin	′	

′	L Sin	d	L Tan	c d	L Cot	L Cos		Proportional Parts
0	9.01 923	120	9.02 162	121	0.97 838	9.99 761	60	
1	9.02 045	120	9.02 283	121	0.97 717	9.99 760	59	
2	9.02 163	120	9.02 404	121	0.97 596	9.99 759	58	
3	9.02 283	119	9.02 525	120	0.97 475	9.99 757	57	
4	9.02 402	118	9.02 645	121	0.97 355	9.99 756	56	**121 120 119 118**
5	9.02 520	119	9.02 766	119	0.97 234	9.99 755	55	1 12.1 12.0 11.9 11.8
6	9.02 639	118	9.02 885	120	0.97 115	9.99 753	54	2 24.2 24.0 23.8 23.6
7	9.02 757	117	9.03 005	119	0.96 995	9.99 752	53	3 36.3 36.0 35.7 35.4
8	9.02 874	117	9.03 124	118	0.96 876	9.99 751	52	4 48.4 48.0 47.6 47.2
9	9.02 992	118	9.03 242	119	0.96 758	9.99 749	51	5 60.5 60.0 59.5 59.0
10	9.03 109	117	9.03 361	118	0.96 639	9.99 748	50	6 72.6 72.0 71.4 70.8
11	9.03 226	116	9.03 479	118	0.96 521	9.99 747	49	7 84.7 84.0 83.3 82.6
12	9.03 342	116	9.03 597	117	0.96 403	9.99 745	48	8 96.8 96.0 95.2 94.4
13	9.03 458	116	9.03 714	118	0.96 286	9.99 744	47	9 108.9 108.0 107.1 106.2
14	9.03 574	116	9.03 832	116	0.96 168	9.99 742	46	
15	9.03 690	116	9.03 948	117	0.96 052	9.99 741	45	
16	9.03 805	115	9.04 065	116	0.95 935	9.99 740	44	**117 116 115 114**
17	9.03 920	115	9.04 181	116	0.95 819	9.99 738	43	1 11.7 11.6 11.5 11.4
18	9.04 034	114	9.04 297	116	0.95 703	9.99 737	42	2 23.4 23.2 23.0 22.8
19	9.04 149	115	9.04 413	116	0.95 587	9.99 736	41	3 35.1 34.8 34.5 34.2
20	9.04 262	113	9.04 528	115	0.95 472	9.99 734	40	4 46.8 46.4 46.0 45.6
21	9.04 376	114	9.04 643	115	0.95 357	9.99 733	39	5 58.5 58.0 57.5 57.0
22	9.04 490	114	9.04 758	115	0.95 242	9.99 731	38	6 70.2 69.6 69.0 68.4
23	9.04 603	113	9.04 873	115	0.95 127	9.99 730	37	7 81.9 81.2 80.5 79.8
24	9.04 715	112	9.04 987	114	0.95 013	9.99 728	36	8 93.6 92.8 92.0 91.2
25	9.04 828	113	9.05 101	114	0.94 899	9.99 727	35	9 105.3 104.4 103.5 102.6
26	9.04 940	112	9.05 214	113	0.94 786	9.99 726	34	
27	9.05 052	112	9.05 328	114	0.94 672	9.99 724	33	**113 112 111 110**
28	9.05 164	112	9.05 441	113	0.94 559	9.99 723	32	1 11.3 11.2 11.1 11.0
29	9.05 275	111	9.05 553	112	0.94 447	9.99 721	31	2 22.6 22.4 22.2 22.0
30	9.05 386	111	9.05 666	113	0.94 334	9.99 720	30	3 33.9 33.6 33.3 33.0
31	9.05 497	110	9.05 778	112	0.94 222	9.99 718	29	4 45.2 44.8 44.4 44.0
32	9.05 607	110	9.05 890	112	0.94 110	9.99 717	28	5 56.5 56.0 55.5 55.0
33	9.05 717	110	9.06 002	112	0.93 998	9.99 716	27	6 67.8 67.2 66.6 66.0
34	9.05 827	110	9.06 113	111	0.93 887	9.99 714	26	7 79.1 78.4 77.7 77.0
35	9.05 937	110	9.06 224	111	0.93 776	9.99 713	25	8 90.4 89.6 88.8 88.0
36	9.06 046	109	9.06 335	111	0.93 665	9.99 711	24	9 101.7 100.8 99.9 99.0
37	9.06 155	109	9.06 445	110	0.93 555	9.99 710	23	
38	9.06 264	109	9.06 556	111	0.93 444	9.99 708	22	**109 108 107 106**
39	9.06 372	108	9.06 666	110	0.93 334	9.99 707	21	1 10.9 10.8 10.7 10.6
40	9.06 481	109	9.06 775	109	0.93 225	9.99 705	20	2 21.8 21.6 21.4 21.2
41	9.06 589	108	9.06 885	110	0.93 115	9.99 704	19	3 32.7 32.4 32.1 31.8
42	9.06 696	107	9.06 994	109	0.93 006	9.99 702	18	4 43.6 43.2 42.8 42.4
43	9.06 804	108	9.07 103	109	0.92 897	9.99 701	17	5 54.5 54.0 53.5 53.0
44	9.06 911	107	9.07 211	108	0.92 789	9.99 699	16	6 65.4 64.8 64.2 63.6
45	9.07 018	107	9.07 320	109	0.92 680	9.99 698	15	7 76.3 75.6 74.9 74.2
46	9.07 124	106	9.07 428	108	0.92 572	9.99 696	14	8 87.2 86.4 85.6 84.8
47	9.07 231	107	9.07 536	108	0.92 464	9.99 695	13	9 98.1 97.2 96.3 95.4
48	9.07 337	106	9.07 643	107	0.92 357	9.99 693	12	
49	9.07 442	105	9.07 751	108	0.92 249	9.99 692	11	**105 104 103**
50	9.07 548	106	9.07 858	107	0.92 142	9.99 690	10	1 10.5 10.4 10.3
51	9.07 653	105	9.07 964	106	0.92 036	9.99 689	9	2 21.0 20.8 20.6
52	9.07 758	105	9.08 071	107	0.91 929	9.99 687	8	3 31.5 31.2 30.9
53	9.07 863	105	9.08 177	106	0.91 823	9.99 686	7	4 42.0 41.6 41.2
54	9.07 968	104	9.08 283	106	0.91 717	9.99 684	6	5 52.5 52.0 51.5
55	9.08 072	104	9.08 389	106	0.91 611	9.99 683	5	6 63.0 62.4 61.8
56	9.08 176	104	9.08 495	106	0.91 505	9.99 681	4	7 73.5 72.8 72.1
57	9.08 280	103	9.08 600	105	0.91 400	9.99 680	3	8 84.0 83.2 82.4
58	9.08 383	103	9.08 705	105	0.91 295	9.99 678	2	9 94.5 93.6 92.7
59	9.08 486	103	9.08 810	105	0.91 190	9.99 677	1	
60	9.08 589		9.08 914	104	0.91 086	9.99 675	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	′	Proportional Parts

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	
	0	9.08 589	103	9.08 914	105	0.91 086	9.99 675	60
	1	9.08 692	103	9.09 019	104	0.90 981	9.99 674	59
	2	9.08 795	102	9.09 123	104	0.90 877	9.99 672	58
105 104 103	3	9.08 897	102	9.09 227	103	0.90 773	9.99 670	57
1 10.5 10.4 10.3	4	9.08 999	102	9.09 330	104	0.90 670	9.99 669	56
2 21.0 20.8 20.6	5	9.09 101	101	9.09 434	103	0.90 566	9.99 667	55
3 31.5 31.2 30.9	6	9.09 202	102	9.09 537	103	0.90 463	9.99 666	54
4 42.0 41.6 41.2	7	9.09 304	101	9.09 640	102	0.90 360	9.99 664	53
5 52.5 52.0 51.5	8	9.09 405	101	9.09 742	103	0.90 258	9.99 663	52
6 63.0 62.4 61.8	9	9.09 506	100	9.09 845	102	0.90 155	9.99 661	51
7 73.5 72.8 72.1	10	9.09 606	101	9.09 947	102	0.90 053	9.99 659	50
8 84.0 83.2 82.4	11	9.09 707	100	9.10 049	101	0.89 951	9.99 658	49
9 94.5 93.6 92.7	12	9.09 807	100	9.10 150	102	0.89 850	9.99 656	48
	13	9.09 907	99	9.10 252	101	0.89 748	9.99 655	47
	14	9.10 006	100	9.10 353	101	0.89 647	9.99 653	46
102 101 99	15	9.10 106	99	9.10 454	101	0.89 546	9.99 651	45
1 10.2 10.1 9.9	16	9.10 205	99	9.10 555	101	0.89 445	9.99 650	44
2 20.4 20.2 19.8	17	9.10 304	98	9.10 656	100	0.89 344	9.99 648	43
3 30.6 30.3 29.7	18	9.10 402	99	9.10 756	100	0.89 244	9.99 647	42
4 40.8 40.4 39.6	19	9.10 501	98	9.10 856	100	0.89 144	9.99 645	41
5 51.0 50.5 49.5	20	9.10 599	98	9.10 956	100	0.89 044	9.99 643	40
6 61.2 60.6 59.4	21	9.10 697	98	9.11 056	99	0.88 944	9.99 642	39
7 71.4 70.7 69.3	22	9.10 795	98	9.11 155	99	0.88 845	9.99 640	38
8 81.6 80.8 79.2	23	9.10 893	97	9.11 254	99	0.88 746	9.99 638	37
9 91.8 90.9 89.1	24	9.10 990	97	9.11 353	99	0.88 647	9.99 637	36
	25	9.11 087	97	9.11 452	99	0.88 548	9.99 635	35
	26	9.11 184	97	9.11 551	98	0.88 449	9.99 633	34
98 97 96	27	9.11 281	96	9.11 649	98	0.88 351	9.99 632	33
1 9.8 9.7 9.6	28	9.11 377	97	9.11 747	98	0.88 253	9.99 630	32
2 19.6 19.4 19.2	29	9.11 474	96	9.11 845	98	0.88 155	9.99 629	31
3 29.4 29.1 28.8	30	9.11 570	96	9.11 943	97	0.88 057	9.99 627	30
4 39.2 38.8 38.4	31	9.11 666	95	9.12 040	98	0.87 960	9.99 625	29
5 49.0 48.5 48.0	32	9.11 761	96	9.12 138	97	0.87 862	9.99 624	28
6 58.8 58.2 57.6	33	9.11 857	95	9.12 235	97	0.87 765	9.99 622	27
7 68.6 67.9 67.2	34	9.11 952	95	9.12 332	96	0.87 668	9.99 620	26
8 78.4 77.6 76.8	35	9.12 047	95	9.12 428	97	0.87 572	9.99 618	25
9 88.2 87.3 86.4	36	9.12 142	94	9.12 525	96	0.87 475	9.99 617	24
	37	9.12 236	95	9.12 621	96	0.87 379	9.99 615	23
95 94 93	38	9.12 331	94	9.12 717	96	0.87 283	9.99 613	22
1 9.5 9.4 9.3	39	9.12 425	94	9.12 813	96	0.87 187	9.99 612	21
2 19.0 18.8 18.6	40	9.12 519	93	9.12 909	95	0.87 091	9.99 610	20
3 28.5 28.2 27.9	41	9.12 612	94	9.13 004	95	0.86 996	9.99 608	19
4 38.0 37.6 37.2	42	9.12 706	93	9.13 099	95	0.86 901	9.99 607	18
5 47.5 47.0 46.5	43	9.12 799	93	9.13 194	95	0.86 806	9.99 605	17
6 57.0 56.4 55.8	44	9.12 892	93	9.13 289	95	0.86 711	9.99 603	16
7 66.5 65.8 65.1	45	9.12 985	93	9.13 384	94	0.86 616	9.99 601	15
8 76.0 75.2 74.4	46	9.13 078	93	9.13 478	95	0.86 522	9.99 600	14
9 85.5 84.6 83.7	47	9.13 171	92	9.13 573	94	0.86 427	9.99 598	13
	48	9.13 263	92	9.13 667	94	0.86 333	9.99 596	12
	49	9.13 355	92	9.13 761	93	0.86 239	9.99 595	11
92 91 90	50	9.13 447	92	9.13 854	94	0.86 146	9.99 593	10
1 9.2 9.1 9.0	51	9.13 539	91	9.13 948	93	0.86 052	9.99 591	9
2 18.4 18.2 18.0	52	9.13 630	92	9.14 041	93	0.85 959	9.99 589	8
3 27.6 27.3 27.0	53	9.13 722	91	9.14 134	93	0.85 866	9.99 588	7
4 36.8 36.4 36.0	54	9.13 813	91	9.14 227	93	0.85 773	9.99 586	6
5 46.0 45.5 45.0	55	9.13 904	90	9.14 320	92	0.85 680	9.99 584	5
6 55.2 54.6 54.0	56	9.13 994	91	9.14 412	92	0.85 588	9.99 582	4
7 64.4 63.7 63.0	57	9.14 085	90	9.14 504	93	0.85 496	9.99 581	3
8 73.6 72.8 72.0	58	9.14 175	91	9.14 597	91	0.85 403	9.99 579	2
9 82.8 81.9 81.0	59	9.14 266	90	9.14 688	92	0.85 312	9.99 577	1
	60	9.14 356		9.14 780		0.85 220	9.99 575	0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	′

′	L Sin	d	L Tan	c d	L Cot	L Cos		Proportional Parts
0	9.14 356	89	9.14 780	92	0.85 220	9.99 575	60	
1	9.14 445	90	9.14 872	91	0.85 128	9.99 574	59	
2	9.14 535	89	9.14 963	91	0.85 037	9.99 572	58	
3	9.14 624	90	9.15 054	91	0.84 946	9.99 570	57	
4	9.14 714		9.15 145		0.84 855	9.99 568	56	
5	9.14 803	89	9.15 236	91	0.84 764	9.99 566	55	
6	9.14 891	88	9.15 327	91	0.84 673	9.99 565	54	
7	9.14 980	89	9.15 417	90	0.84 583	9.99 563	53	
8	9.15 069	89	9.15 508	91	0.84 492	9.99 561	52	
9	9.15 157	88	9.15 598	90	0.84 402	9.99 559	51	
10	9.15 245	88	9.15 688	90	0.84 312	9.99 557	50	
11	9.15 333	88	9.15 777	89	0.84 223	9.99 556	49	
12	9.15 421	87	9.15 867	90	0.84 133	9.99 554	48	
13	9.15 508	88	9.15 956	89	0.84 044	9.99 552	47	
14	9.15 596	87	9.16 046	90	0.83 954	9.99 550	46	
15	9.15 683	87	9.16 135	89	0.83 865	9.99 548	45	
16	9.15 770	87	9.16 224	89	0.83 776	9.99 546	44	
17	9.15 857	87	9.16 312	88	0.83 688	9.99 545	43	
18	9.15 944	86	9.16 401	89	0.83 599	9.99 543	42	
19	9.16 030	86	9.16 489	88	0.83 511	9.99 541	41	
20	9.16 116	87	9.16 577	88	0.83 423	9.99 539	40	
21	9.16 203	86	9.16 665	88	0.83 335	9.99 537	39	
22	9.16 289	85	9.16 753	88	0.83 247	9.99 535	38	
23	9.16 374	86	9.16 841	87	0.83 159	9.99 533	37	
24	9.16 460	85	9.16 928	88	0.83 072	9.99 532	36	
25	9.16 545	86	9.17 016	87	0.82 984	9.99 530	35	
26	9.16 631	85	9.17 103	87	0.82 897	9.99 528	34	
27	9.16 716	85	9.17 190	87	0.82 810	9.99 526	33	
28	9.16 801	85	9.17 277	86	0.82 723	9.99 524	32	
29	9.16 886	84	9.17 363	87	0.82 637	9.99 522	31	
30	9.16 970	85	9.17 450	86	0.82 550	9.99 520	30	
31	9.17 055	84	9.17 536	86	0.82 464	9.99 518	29	
32	9.17 139	84	9.17 622	86	0.82 378	9.99 517	28	
33	9.17 223	84	9.17 708	86	0.82 292	9.99 515	27	
34	9.17 307	84	9.17 794	86	0.82 206	9.99 513	26	
35	9.17 391	83	9.17 880	85	0.82 120	9.99 511	25	
36	9.17 474	84	9.17 965	86	0.82 035	9.99 509	24	
37	9.17 558	83	9.18 051	85	0.81 949	9.99 507	23	
38	9.17 641	83	9.18 136	85	0.81 864	9.99 505	22	
39	9.17 724	83	9.18 221	85	0.81 779	9.99 503	21	
40	9.17 807	83	9.18 306	85	0.81 694	9.99 501	20	
41	9.17 890	83	9.18 391	84	0.81 609	9.99 499	19	
42	9.17 973	82	9.18 475	85	0.81 525	9.99 497	18	
43	9.18 055	82	9.18 560	84	0.81 440	9.99 495	17	
44	9.18 137	83	9.18 644	84	0.81 356	9.99 494	16	
45	9.18 220	82	9.18 728	84	0.81 272	9.99 492	15	
46	9.18 302	81	9.18 812	84	0.81 188	9.99 490	14	
47	9.18 383	82	9.18 896	83	0.81 104	9.99 488	13	
48	9.18 465	82	9.18 979	84	0.81 021	9.99 486	12	
49	9.18 547	81	9.19 063	83	0.80 937	9.99 484	11	
50	9.18 628	81	9.19 146	83	0.80 854	9.99 482	10	
51	9.18 709	81	9.19 229	83	0.80 771	9.99 480	9	
52	9.18 790	81	9.19 312	83	0.80 688	9.99 478	8	
53	9.18 871	81	9.19 395	83	0.80 605	9.99 476	7	
54	9.18 952	81	9.19 478	83	0.80 522	9.99 474	6	
55	9.19 033	80	9.19 561	82	0.80 439	9.99 472	5	
56	9.19 113	80	9.19 643	82	0.80 357	9.99 470	4	
57	9.19 193	80	9.19 725	82	0.80 275	9.99 468	3	
58	9.19 273	80	9.19 807	82	0.80 193	9.99 466	2	
59	9.19 353	80	9.19 889	82	0.80 111	9.99 464	1	
60	9.19 433		9.19 971		0.80 029	9.99 462	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	′	Proportional Parts

	92	91	90
1	9.2	9.1	9.0
2	18.4	18.2	18.0
3	27.6	27.3	27.0
4	36.8	36.4	36.0
5	46.0	45.5	45.0
6	55.2	54.6	54.0
7	64.4	63.7	63.0
8	73.6	72.8	72.0
9	82.8	81.9	81.0

	89	88
1	8.9	8.8
2	17.8	17.6
3	26.7	26.4
4	35.6	35.2
5	44.5	44.0
6	53.4	52.8
7	62.3	61.6
8	71.2	70.4
9	80.1	79.2

	87	86	85
1	8.7	8.6	8.5
2	17.4	17.2	17.0
3	26.1	25.8	25.5
4	34.8	34.4	34.0
5	43.5	43.0	42.5
6	52.2	51.6	51.0
7	60.9	60.2	59.5
8	69.6	68.8	68.0
9	78.3	77.4	76.5

	84	83
1	8.4	8.3
2	16.8	16.6
3	25.2	24.9
4	33.6	33.2
5	42.0	41.5
6	50.4	49.8
7	58.8	58.1
8	67.2	66.4
9	75.6	74.7

	82	81	80
1	8.2	8.1	8.0
2	16.4	16.2	16.0
3	24.6	24.3	24.0
4	32.8	32.4	32.0
5	41.0	40.5	40.0
6	49.2	48.6	48.0
7	57.4	56.7	56.0
8	65.6	64.8	64.0
9	73.8	72.9	72.0

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	
	0	9.19 433		9.19 971		0.80 029	9.99 462	60
	1	9.19 513	80	9.20 053	82	0.79 947	9.99 460	59
	2	9.19 592	79	9.20 134	81	0.79 866	9.99 458	58
	3	9.19 672	80	9.20 216	82	0.79 784	9.99 456	57
	4	9.19 751	79	9.20 297	81	0.79 703	9.99 454	56
	5	9.19 830	79	9.20 378	81	0.79 622	9.99 452	55
82 81 80	6	9.19 909	79	9.20 459	81	0.79 541	9.99 450	54
1 8.2 8.1 8.0	7	9.19 988	79	9.20 540	81	0.79 460	9.99 448	53
2 16.4 16.2 16.0	8	9.20 067	78	9.20 621	80	0.79 379	9.99 446	52
3 24.6 24.3 24.0	9	9.20 145	78	9.20 701	81	0.79 299	9.99 444	51
4 32.8 32.4 32.0	10	9.20 223	79	9.20 782	80	0.79 218	9.99 442	50
5 41.0 40.5 40.0	11	9.20 302	78	9.20 862	80	0.79 138	9.99 440	49
6 49.2 48.6 48.0	12	9.20 380	78	9.20 942	80	0.79 058	9.99 438	48
7 57.4 56.7 56.0	13	9.20 458	77	9.21 022	80	0.78 978	9.99 436	47
8 65.6 64.8 64.0	14	9.20 535	78	9.21 102	80	0.78 898	9.99 434	46
9 73.8 72.9 72.0	15	9.20 613	78	9.21 182	79	0.78 818	9.99 432	45
	16	9.20 691	77	9.21 261	80	0.78 739	9.99 429	44
	17	9.20 768	77	9.21 341	79	0.78 659	9.99 427	43
	18	9.20 845	77	9.21 420	79	0.78 580	9.99 425	42
	19	9.20 922	77	9.21 499	79	0.78 501	9.99 423	41
79 78 77	20	9.20 999	77	9.21 578	79	0.78 422	9.99 421	40
1 7.9 7.8 7.7	21	9.21 076	77	9.21 657	79	0.78 343	9.99 419	39
2 15.8 15.6 15.4	22	9.21 153	77	9.21 736	78	0.78 264	9.99 417	38
3 23.7 23.4 23.1	23	9.21 229	76	9.21 814	79	0.78 186	9.99 415	37
4 31.6 31.2 30.8	24	9.21 306	77	9.21 893	78	0.78 107	9.99 413	36
5 39.5 39.0 38.5	25	9.21 382	76	9.21 971	78	0.78 029	9.99 411	35
6 47.4 46.8 46.2	26	9.21 458	76	9.22 049	78	0.77 951	9.99 409	34
7 55.3 54.6 53.9	27	9.21 534	76	9.22 127	78	0.77 873	9.99 407	33
8 63.2 62.4 61.6	28	9.21 610	75	9.22 205	78	0.77 795	9.99 404	32
9 71.1 70.2 69.3	29	9.21 685	76	9.22 283	78	0.77 717	9.99 402	31
	30	9.21 761	75	9.22 361	77	0.77 639	9.99 400	30
	31	9.21 836	76	9.22 438	78	0.77 562	9.99 398	29
	32	9.21 912	75	9.22 516	77	0.77 484	9.99 396	28
	33	9.21 987	75	9.22 593	77	0.77 407	9.99 394	27
76 75 74	34	9.22 062	75	9.22 670	77	0.77 330	9.99 392	26
1 7.6 7.5 7.4	35	9.22 137	74	9.22 747	77	0.77 253	9.99 390	25
2 15.2 15.0 14.8	36	9.22 211	75	9.22 824	77	0.77 176	6.99 388	24
3 22.8 22.5 22.2	37	9.22 286	75	9.22 901	76	0.77 099	9.99 385	23
4 30.4 30.0 29.6	38	9.22 361	74	9.22 977	77	0.77 023	9.99 383	22
5 38.0 37.5 37.0	39	9.22 435	74	9.23 054	76	0.76 946	9.99 381	21
6 45.6 45.0 44.4	40	9.22 509	74	9.23 130	76	0.76 870	9.99 379	20
7 53.2 52.5 51.8	41	9.22 583	74	9.23 206	76	0.76 794	9.99 377	19
8 60.8 60.0 59.2	42	9.22 657	74	9.23 283	77	0.76 717	9.99 375	18
9 68.4 67.5 66.6	43	9.22 731	74	9.23 359	76	0.76 641	9.99 372	17
	44	9.22 805	73	9.23 435	76	0.76 565	9.99 370	16
	45	9.22 878	74	9.23 510	75	0.76 490	9.99 368	15
	46	9.22 952	73	9.23 586	76	0.76 414	9.99 366	14
73 72 71	47	9.23 025	73	9.23 661	75	0.76 339	9.99 364	13
1 7.3 7.2 7.1	48	9.23 098	73	9.23 737	76	0.76 263	9.99 362	12
2 14.6 14.4 14.2	49	9.23 171	73	9.23 812	75	0.76 188	9.99 359	11
3 21.9 21.6 21.3	50	9.23 244	73	9.23 887	75	0.76 113	9.99 357	10
4 29.2 28.8 28.4	51	9.23 317	73	9.23 962	75	0.76 038	9.99 355	9
5 36.5 36.0 35.5	52	9.23 390	72	9.24 037	75	0.75 963	9.99 353	8
6 43.8 43.2 42.6	53	9.23 462	73	9.24 112	75	0.75 888	9.99 351	7
7 51.1 50.4 49.7	54	9.23 535	72	9.24 186	74	0.75 814	9.99 348	6
8 58.4 57.6 56.8	55	9.23 607	72	9.24 261	75	0.75 739	9.99 346	5
9 65.7 64.8 63.9	56	9.23 679	73	9.24 335	74	0.75 665	9.99 344	4
	57	9.23 752	71	9.24 410	75	0.75 590	9.99 342	3
	58	9.23 823	72	9.24 484	74	0.75 516	9.99 340	2
	59	9.23 895	72	9.24 558	74	0.75 442	9.99 337	1
	60	9.23 967		9.24 632	74	0.75 368	9.99 335	0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.23 967	72	9.24 632	74	0.75 368	9.99 335	2	60	
1	9.24 039	71	9.24 706	73	0.75 294	9.99 333	2	59	
2	9.24 110	71	9.24 779	74	0.75 221	9.99 331	3	58	
3	9.24 181	72	9.24 853	73	0.75 147	9.99 328	2	57	
4	9.24 253		9.24 926		0.75 074	9.99 326		56	
5	9.24 324	71	9.25 000	74	0.75 000	9.99 324	2	55	
6	9.24 395	71	9.25 073	73	0.74 927	9.99 322	2	54	
7	9.24 466	71	9.25 146	73	0.74 854	9.99 319	3	53	
8	9.24 536	70	9.25 219	73	0.74 781	9.99 317	2	52	
9	9.24 607	71	9.25 292	73	0.74 708	9.99 315	2	51	
10	9.24 677	70	9.25 365	72	0.74 635	9.99 313	2	50	
11	9.24 748	71	9.25 437	73	0.74 563	9.99 310	3	49	
12	9.24 818	70	9.25 510	72	0.74 490	9.99 308	2	48	
13	9.24 888	70	9.25 582	73	0.74 418	9.99 306	2	47	
14	9.24 958	70	9.25 655	72	0.74 345	9.99 304	2	46	
15	9.25 028	70	9.25 727	72	0.74 273	9.99 301	3	45	
16	9.25 098	70	9.25 799	72	0.74 201	9.99 299	2	44	
17	9.25 168	69	9.25 871	72	0.74 129	9.99 297	2	43	
18	9.25 237	70	9.25 943	72	0.74 057	9.99 294	3	42	
19	9.25 307	69	9.26 015	71	0.73 985	9.99 292	2	41	
20	9.25 376	69	9.26 086	72	0.73 914	9.99 290	2	40	
21	9.25 445	69	9.26 158	71	0.73 842	9.99 288	2	39	
22	9.25 514	69	9.26 229	72	0.73 771	9.99 285	3	38	
23	9.25 583	69	9.26 301	71	0.73 699	9.99 283	2	37	
24	9.25 652	69	9.26 372	71	0.73 628	9.99 281	2	36	
25	9.25 721	69	9.26 443	71	0.73 557	9.99 278	3	35	
26	9.25 790	68	9.26 514	71	0.73 486	9.99 276	2	34	
27	9.25 858	69	9.26 585	70	0.73 415	9.99 274	2	33	
28	9.25 927	68	9.26 655	71	0.73 345	9.99 271	3	32	
29	9.25 995	68	9.26 726	71	0.73 274	9.99 269	2	31	
30	9.26 063	68	9.26 797	70	0.73 203	9.99 267	2	30	
31	9.26 131	68	9.26 867	70	0.73 133	9.99 264	3	29	
32	9.26 199	68	9.26 937	71	0.73 063	9.99 262	2	28	
33	9.26 267	68	9.27 008	70	0.72 992	9.99 260	2	27	
34	9.26 335	68	9.27 078	70	0.72 922	9.99 257	3	26	
35	9.26 403	67	9.27 148	70	0.72 852	9.99 255	2	25	
36	9.26 470	68	9.27 218	70	0.72 782	9.99 252	3	24	
37	9.26 538	67	9.27 288	69	0.72 712	9.99 250	2	23	
38	9.26 605	67	9.27 357	70	0.72 643	9.99 248	2	22	
39	9.26 672	67	9.27 427	69	0.72 573	9.99 245	3	21	
40	9.26 739	67	9.27 496	70	0.72 504	9.99 243	2	20	
41	9.26 806	67	9.27 566	69	0.72 434	9.99 241	2	19	
42	9.26 873	67	9.27 635	69	0.72 365	9.99 238	3	18	
43	9.26 940	67	9.27 704	69	0.72 296	9.99 236	2	17	
44	9.27 007	66	9.27 773	69	0.72 227	9.99 233	3	16	
45	9.27 073	67	9.27 842	69	0.72 158	9.99 231	2	15	
46	9.27 140	66	9.27 911	69	0.72 089	9.99 229	2	14	
47	9.27 206	67	9.27 980	69	0.72 020	9.99 226	3	13	
48	9.27 273	66	9.28 049	68	0.71 951	9.99 224	2	12	
49	9.27 339	66	9.28 117	69	0.71 883	9.99 221	3	11	
50	9.27 405	66	9.28 186	68	0.71 814	9.99 219	2	10	
51	9.27 471	66	9.28 254	69	0.71 746	9.99 217	2	9	
52	9.27 537	65	9.28 323	68	0.71 677	9.99 214	3	8	
53	9.27 602	66	9.28 391	68	0.71 609	9.99 212	2	7	
54	9.27 668	66	9.28 459	68	0.71 541	9.99 209	3	6	
55	9.27 734	65	9.28 527	68	0.71 473	9.99 207	2	5	
56	9.27 799	65	9.28 595	67	0.71 405	9.99 204	3	4	
57	9.27 864	66	9.28 662	68	0.71 338	9.99 202	2	3	
58	9.27 930	65	9.28 730	68	0.71 270	9.99 200	2	2	
59	9.27 995	65	9.28 798	67	0.71 202	9.99 197	3	1	
60	9.28 060		9.28 865		0.71 135	9.99 195	2	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	74	73	72
1	7.4	7.3	7.2
2	14.8	14.6	14.4
3	22.2	21.9	21.6
4	29.6	29.2	28.8
5	37.0	36.5	36.0
6	44.4	43.8	43.2
7	51.8	51.1	50.4
8	59.2	58.4	57.6
9	66.6	65.7	64.8

	71	70	69
1	7.1	7.0	6.9
2	14.2	14.0	13.8
3	21.3	21.0	20.7
4	28.4	28.0	27.6
5	35.5	35.0	34.5
6	42.6	42.0	41.4
7	49.7	49.0	48.3
8	56.8	56.0	55.2
9	63.9	63.0	62.1

	68	67	66
1	6.8	6.7	6.6
2	13.6	13.4	13.2
3	20.4	20.1	19.8
4	27.2	26.8	26.4
5	34.0	33.5	33.0
6	40.8	40.2	39.6
7	47.6	46.9	46.2
8	54.4	53.6	52.8
9	61.2	60.3	59.4

	65	3
1	6.5	0.3
2	13.0	0.6
3	19.5	0.9
4	26.0	1.2
5	32.5	1.5
6	39.0	1.8
7	45.5	2.1
8	52.0	2.4
9	58.5	2.7

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.28 060	65	9.28 865	68	0.71 135	9.99 195	3	60
	1	9.28 125	65	9.28 933	67	0.71 067	9.99 192	2	59
	2	9.28 190	64	9.29 000	67	0.71 000	9.99 190	3	58
	3	9.28 254	65	9.29 067	67	0.70 933	9.99 187	2	57
	4	9.28 319	65	9.29 134	67	0.70 866	9.99 185	3	56
	5	9.28 384	64	9.29 201	67	0.70 799	9.99 182	2	55
68 67 66	6	9.28 448	64	9.29 268	67	0.70 732	9.99 180	3	54
1 6.8 6.7 6.6	7	9.28 512	65	9.29 335	67	0.70 665	9.99 177	2	53
2 13.6 13.4 13.2	8	9.28 577	64	9.29 402	66	0.70 598	9.99 175	3	52
3 20.4 20.1 19.8	9	9.28 641	64	9.29 468	67	0.70 532	9.99 172	2	51
4 27.2 26.8 26.4	10	9.28 705	64	9.29 535	66	0.70 465	9.99 170	3	50
5 34.0 33.5 33.0	11	9.28 769	64	9.29 601	67	0.70 399	9.99 167	2	49
6 40.8 40.2 39.6	12	9.28 833	63	9.29 668	66	0.70 332	9.99 165	3	48
7 47.6 46.9 46.2	13	9.28 896	64	9.29 734	66	0.70 266	9.99 162	2	47
8 54.4 53.6 52.8	14	9.28 960	64	9.29 800	66	0.70 200	9.99 160	3	46
9 61.2 60.3 59.4	15	9.29 024	63	9.29 866	66	0.70 134	9.99 157	2	45
	16	9.29 087	63	9.29 932	66	0.70 068	9.99 155	3	44
	17	9.29 150	64	9.29 998	66	0.70 002	9.99 152	2	43
	18	9.29 214	63	9.30 064	66	0.69 936	9.99 150	3	42
	19	9.29 277	63	9.30 130	66	0.69 870	9.99 147	2	41
65 64 63	20	9.29 340	63	9.30 195	65	0.69 805	9.99 145	3	40
1 6.5 6.4 6.3	21	9.29 403	63	9.30 261	66	0.69 739	9.99 142	2	39
2 13.0 12.8 12.6	22	9.29 466	63	9.30 326	65	0.69 674	9.99 140	3	38
3 19.5 19.2 18.9	23	9.29 529	63	9.30 391	65	0.69 609	9.99 137	2	37
4 26.0 25.6 25.2	24	9.29 591	62	9.30 457	66	0.69 543	9.99 135	3	36
5 32.5 32.0 31.5	25	9.29 654	63	9.30 522	65	0.69 478	9.99 132	2	35
6 39.0 38.4 37.8	26	9.29 716	62	9.30 587	65	0.69 413	9.99 130	3	34
7 45.5 44.8 44.1	27	9.29 779	63	9.30 652	65	0.69 348	9.99 127	3	33
8 52.0 51.2 50.4	28	9.29 841	62	9.30 717	65	0.69 283	9.99 124	3	32
9 58.5 57.6 56.7	29	9.29 903	62	9.30 782	65	0.69 218	9.99 122	2	31
	30	9.29 966	63	9.30 846	64	0.69 154	9.99 119	3	30
	31	9.30 028	62	9.30 911	65	0.69 089	9.99 117	2	29
	32	9.30 090	62	9.30 975	64	0.69 025	9.99 114	3	28
	33	9.30 151	61	9.31 040	65	0.68 960	9.99 112	2	27
62 61 60	34	9.30 213	62	9.31 104	64	0.68 896	9.99 109	3	26
1 6.2 6.1 6.0	35	9.30 275	62	9.31 168	64	0.68 832	9.99 106	3	25
2 12.4 12.2 12.0	36	9.30 336	61	9.31 233	65	0.68 767	9.99 104	2	24
3 18.6 18.3 18.0	37	9.30 398	62	9.31 297	64	0.68 703	9.99 101	3	23
4 24.8 24.4 24.0	38	9.30 459	61	9.31 361	64	0.68 639	9.99 099	2	22
5 31.0 30.5 30.0	39	9.30 521	62	9.31 425	64	0.68 575	9.99 096	3	21
6 37.2 36.6 36.0	40	9.30 582	61	9.31 489	64	0.68 511	9.99 093	3	20
7 43.4 42.7 42.0	41	9.30 643	61	9.31 552	63	0.68 448	9.99 091	2	19
8 49.6 48.8 48.0	42	9.30 704	61	9.31 616	64	0.68 384	9.99 088	3	18
9 55.8 54.9 54.0	43	9.30 765	61	9.31 679	63	0.68 321	9.99 086	2	17
	44	9.30 826	61	9.31 743	64	0.68 257	9.99 083	3	16
	45	9.30 887	60	9.31 806	63	0.68 194	9.99 080	3	15
	46	9.30 947	61	9.31 870	64	0.68 130	9.99 078	2	14
59 3	47	9.31 008	60	9.31 933	63	0.68 067	9.99 075	3	13
1 5.9 0.3	48	9.31 068	61	9.31 996	63	0.68 004	9.99 072	3	12
2 11.8 0.6	49	9.31 129	60	9.32 059	63	0.67 941	9.99 070	2	11
3 17.7 0.9	50	9.31 189	61	9.32 122	63	0.67 878	9.99 067	3	10
4 23.6 1.2	51	9.31 250	60	9.32 185	63	0.67 815	9.99 064	3	9
5 29.5 1.5	52	9.31 310	60	9.32 248	63	0.67 752	9.99 062	2	8
6 35.4 1.8	53	9.31 370	60	9.32 311	63	0.67 689	9.99 059	3	7
7 41.3 2.1	54	9.31 430	60	9.32 373	62	0.67 627	9.99 056	3	6
8 47.2 2.4	55	9.31 490	59	9.32 436	63	0.67 564	9.99 054	2	5
9 53.1 2.7	56	9.31 549	60	9.32 498	62	0.67 502	9.99 051	3	4
	57	9.31 609	60	9 32 561	63	0.67 439	9.99 048	3	3
	58	9.31 669	59	9.32 623	62	0.67 377	9.99 046	2	2
	59	9.31 728	60	9.32 685	62	0.67 315	9.99 043	3	1
	60	9.31 788		9.32 747	62	0.67 253	9.99 040	3	0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.31 788	59	9.32 747	63	0.67 253	9.99 040	2	60	
1	9.31 847	60	9.32 810	62	0.67 190	9.99 038	3	59	
2	9.31 907	59	9.32 872	61	0.67 128	9.99 035	3	58	
3	9.31 966	59	9.32 933	62	0.67 067	9.99 032	2	57	
4	9.32 025	59	9.32 995	62	0.67 005	9.99 030	3	56	
5	9.32 084	59	9.33 057	62	0.66 943	9.99 027	3	55	
6	9.32 143	59	9.33 119	61	0.66 881	9.99 024	2	54	
7	9.32 202	59	9.33 180	62	0.66 820	9.99 022	3	53	
8	9.32 261	58	9.33 242	61	0.66 758	9.99 019	3	52	
9	9.32 319	59	9.33 303	62	0.66 697	9.99 016	3	51	
10	9.32 378	59	9.33 365	61	0.66 635	9.99 013	2	50	
11	9.32 437	58	9.33 426	61	0.66 574	9.99 011	3	49	
12	9.32 495	58	9.33 487	61	0.66 513	9.99 008	3	48	
13	9.32 553	59	9.33 548	61	0.66 452	9.99 005	3	47	
14	9.32 612	58	9.33 609	61	0.66 391	9.99 002	2	46	
15	9.32 670	58	9.33 670	61	0.66 330	9.99 000	3	45	
16	9.32 728	58	9.33 731	61	0.66 269	9.98 997	3	44	
17	9.32 786	58	9.33 792	61	0.66 208	9.98 994	3	43	
18	9.32 844	58	9.33 853	60	0.66 147	9.98 991	2	42	
19	9.32 902	58	9.33 913	61	0.66 087	9.98 989	3	41	
20	9.32 960	58	9.33 974	60	0.66 026	9.98 986	3	40	
21	9.33 018	57	9.34 034	61	0.65 966	9.98 983	3	39	
22	9.33 075	58	9.34 095	60	0.65 905	9.98 980	2	38	
23	9.33 133	57	9.34 155	60	0.65 845	9.98 978	3	37	
24	9.33 190	58	9.34 215	61	0.65 785	9.98 975	3	36	
25	9.33 248	57	9.34 276	60	0.65 724	9.98 972	3	35	
26	9.33 305	57	9.34 336	60	0.65 664	9.98 969	2	34	
27	9.33 362	58	9.34 396	60	0.65 604	9.98 967	3	33	
28	9.33 420	57	9.34 456	60	0.65 544	9.98 964	3	32	
29	9.33 477	57	9.34 516	60	0.65 484	9.98 961	3	31	
30	9.33 534	57	9.34 576	59	0.65 424	9.98 958	3	30	
31	9.33 591	56	9.34 635	60	0.65 365	9.98 955	2	29	
32	9.33 647	57	9.34 695	60	0.65 305	9.98 953	3	28	
33	9.33 704	57	9.34 755	59	0.65 245	9.98 950	3	27	
34	9.33 761	57	9.34 814	60	0.65 186	9.98 947	3	26	
35	9.33 818	56	9.34 874	59	0.65 126	9.98 944	3	25	
36	9.33 874	57	9.34 933	59	0.65 067	9.98 941	3	24	
37	9.33 931	56	9.34 992	59	0.65 008	9.98 938	2	23	
38	9.33 987	56	9.35 051	60	0.64 949	9.98 936	3	22	
39	9.34 043	57	9.35 111	59	0.64 889	9.98 933	3	21	
40	9.34 100	56	9.35 170	59	0.64 830	9.98 930	3	20	
41	9.34 156	56	9.35 229	59	0.64 771	9.98 927	3	19	
42	9.34 212	56	9.35 288	59	0.64 712	9.98 924	3	18	
43	9.34 268	56	9.35 347	58	0.64 653	9.98 921	2	17	
44	9.34 324	56	9.35 405	59	0.64 595	9.98 919	3	16	
45	9.34 380	56	9.35 464	59	0.64 536	9.98 916	3	15	
46	9.34 436	55	9.35 523	58	0.64 477	9.98 913	3	14	
47	9.34 491	56	9.35 581	59	0.64 419	9.98 910	3	13	
48	9.34 547	55	9.35 640	58	0.64 360	9.98 907	3	12	
49	9.34 602	56	9.35 698	59	0.64 302	9.98 904	3	11	
50	9.34 658	55	9.35 757	58	0.64 243	9.98 901	3	10	
51	9.34 713	56	9.35 815	58	0.64 185	9.98 898	3	9	
52	9.34 769	55	9.35 873	58	0.64 127	9.98 896	2	8	
53	9.34 824	55	9.35 931	58	0.64 069	9.98 893	3	7	
54	9.34 879	55	9.35 989	58	0.64 011	9.98 890	3	6	
55	9.34 934	55	9.36 047	58	0.63 953	9.98 887	3	5	
56	9.34 989	55	9.36 105	58	0.63 895	9.98 884	3	4	
57	9.35 044	55	9.36 163	58	0.63 837	9.98 881	3	3	
58	9.35 099	55	9.36 221	58	0.63 779	9.98 878	3	2	
59	9.35 154	55	9.36 279	57	0.63 721	9.98 875	3	1	
60	9.35 209		9.36 336		0.63 664	9.98 872		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	63	62	61
1	6.3	6.2	6.1
2	12.6	12.4	12.2
3	18.9	18.6	18.3
4	25.2	24.8	24.4
5	31.5	31.0	30.5
6	37.8	37.2	36.6
7	44.1	43.4	42.7
8	50.4	49.6	48.8
9	56.7	55.8	54.9

	60	59
1	6.0	5.9
2	12.0	11.8
3	18.0	17.7
4	24.0	23.6
5	30.0	29.5
6	36.0	35.4
7	42.0	41.3
8	48.0	47.2
9	54.0	53.1

	58	57
1	5.8	5.7
2	11.6	11.4
3	17.4	17.1
4	23.2	22.8
5	29.0	28.5
6	34.8	34.2
7	40.6	39.9
8	46.4	45.6
9	52.2	51.3

	56	55	3
1	5.6	5.5	0.3
2	11.2	11.0	0.6
3	16.8	16.5	0.9
4	22.4	22.0	1.2
5	28.0	27.5	1.5
6	33.6	33.0	1.8
7	39.2	38.5	2.1
8	44.8	44.0	2.4
9	50.4	49.5	2.7

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.35 209		9.36 336		0.63 664	9.98 872		60
	1	9.35 263	54	9.36 394	58	0.63 606	9.98 869	3	59
	2	9.35 318	55	9.36 452	58	0.63 548	9.98 867	2	58
	3	9.35 373	55	9.36 509	57	0.63 491	9.98 864	3	57
			54		57			3	
	4	9.35 427		9.36 566		0.63 434	9.98 861		56
	5	9.35 481	54	9.36 624	58	0.63 376	9.98 858	3	55
58 57 56	6	9.35 536	55	9.36 681	57	0.63 319	9.98 855	3	54
1 5.8 5.7 5.6			54		57			3	
2 11.6 11.4 11.2	7	9.35 590		9.36 738		0.63 262	9.98 852		53
3 17.4 17.1 16.8	8	9.35 644	54	9.36 795	57	0.63 205	9.98 849	3	52
4 23.2 22.8 22.4	9	9.35 698	54	9.36 852	57	0.63 148	9.98 846	3	51
5 29.0 28.5 28.0			54		57			3	
6 34.8 34.2 33.6	10	9.35 752		9.36 909		0.63 091	9.98 843	3	50
7 40.6 39.9 39.2	11	9.35 806	54	9.36 966	57	0.63 034	9.98 840	3	49
8 46.4 45.6 44.8	12	9.35 860	54	9.37 023	57	0.62 977	9.98 837	3	48
9 52.2 51.3 50.4	13	9.35 914	54	9.37 080	57	0.62 920	9.98 834	3	47
			54		57			3	
	14	9.35 968		9.37 137		0.62 863	9.98 831		46
	15	9.36 022	54	9.37 193	56	0.62 807	9.98 828	3	45
	16	9.36 075	53	9.37 250	57	0.62 750	9.98 825	3	44
			54		56			3	
	17	9.36 129		9.37 306		0.62 694	9.98 822		43
	18	9.36 182	53	9.37 363	57	0.62 637	9.98 819	3	42
	19	9.36 236	54	9.37 419	56	0.62 581	9.98 816	3	41
55 54 53			53		57			3	
1 5.5 5.4 5.3	20	9.36 289		9.37 476		0.62 524	9.98 813	3	40
2 11.0 10.8 10.6	21	9.36 342	53	9.37 532	56	0.62 468	9.98 810	3	39
3 16.5 16.2 15.9	22	9.36 395	53	9.37 588	56	0.62 412	9.98 807	3	38
4 22.0 21.6 21.2	23	9.36 449	54	9.37 644	56	0.62 356	9.98 804	3	37
5 27.5 27.0 26.5			53		56			3	
6 33.0 32.4 31.8	24	9.36 502		9.37 700		0.62 300	9.98 801		36
7 38.5 37.8 37.1	25	9.36 555	53	9.37 756	56	0.62 244	9.98 798	3	35
8 44.0 43.2 42.4	26	9.36 608	53	9.37 812	56	0.62 188	9.98 795	3	34
9 49.5 48.6 47.7			52		56			3	
	27	9.36 660		9.37 868		0.62 132	9.98 792		33
	28	9.36 713	53	9.37 924	56	0.62 076	9.98 789	3	32
	29	9.36 766	53	9.37 980	56	0.62 020	9.98 786	3	31
			53		55			3	
	30	9.36 819		9.38 035		0.61 965	9.98 783	3	30
	31	9.36 871	52	9.38 091	56	0.61 909	9.98 780	3	29
	32	9.36 924	53	9.38 147	56	0.61 853	9.98 777	3	28
	33	9.36 976	52	9.38 202	55	0.61 798	9.98 774	3	27
			52		55			3	
52 51	34	9.37 028		9.38 257		0.61 743	9.98 771		26
1 5.2 5.1	35	9.37 081	53	9.38 313	56	0.61 687	9.98 768	3	25
2 10.4 10.2	36	9.37 133	52	9.38 368	55	0.61 632	9.98 765	3	24
3 15.6 15.3			52		55			3	
4 20.8 20.4	37	9.37 185		9.38 423		0.61 577	9.98 762		23
5 26.0 25.5	38	9.37 237	52	9.38 479	56	0.61 521	9.98 759	3	22
6 31.2 30.6	39	9.37 289	52	9.38 534	55	0.61 466	9.98 756	3	21
7 36.4 35.7			52		55			3	
8 41.6 40.8	40	9.37 341		9.38 589		0.61 411	9.98 753	3	20
9 46.8 45.9	41	9.37 393	52	9.38 644	55	0.61 356	9.98 750	3	19
	42	9.37 445	52	9.38 699	55	0.61 301	9.98 746	4	18
	43	9.37 497	52	9.38 754	55	0.61 246	9.98 743	3	17
			52		54			3	
	44	9.37 549		9.38 808		0.61 192	9.98 740		16
	45	9.37 600	51	9.38 863	55	0.61 137	9.98 737	3	15
	46	9.37 652	52	9.38 918	55	0.61 082	9.98 734	3	14
			51		54			3	
4 3	47	9.37 703		9.38 972		0.61 028	9.98 731		13
1 0.4 0.3	48	9.37 755	52	9.39 027	55	0.60 973	9.98 728	3	12
2 0.8 0.6	49	9.37 806	51	9.39 082	55	0.60 918	9.98 725	3	11
3 1.2 0.9			52		54			3	
4 1.6 1.2	50	9.37 858		9.39 136		0.60 864	9.98 722	3	10
5 2.0 1.5	51	9.37 909	51	9.39 190	54	0.60 810	9.98 719		9
6 2.4 1.8	52	9.37 960	51	9.39 245	55	0.60 755	9.98 715	4	8
7 2.8 2.1	53	9.38 011	51	9.39 299	54	0.60 701	9.98 712	3	7
8 3.2 2.4			51		54			3	
9 3.6 2.7	54	9.38 062		9.39 353		0.60 647	9.98 709		6
	55	9.38 113	51	9.39 407	54	0.60 593	9.98 706	3	5
	56	9.38 164	51	9.39 461	54	0.60 539	9.98 703	3	4
			51		54			3	
	57	9.38 215		9.39 515		0.60 485	9.98 700		3
	58	9.38 266	51	9.39 569	54	0.60 431	9.98 697	3	2
	59	9.38 317	51	9.39 623	54	0.60 377	9.98 694	3	1
			51		54			4	
	60	9.38 368		9.39 677		0.60 323	9.98 690		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
0	9.38 368	50	9.39 677	54	0.60 323	9.98 690	3	60
1	9.38 418	51	9.39 731	54	0.60 269	9.98 687	3	59
2	9.38 469	50	9.39 785	53	0.60 215	9.98 684	3	58
3	9.38 519	51	9.39 838	54	0.60 162	9.98 681	3	57
4	9.38 570	50	9.39 892	53	0.60 108	9.98 678	3	56
5	9.38 620	50	9.39 945	54	0.60 055	9.98 675	4	55
6	9.38 670	51	9.39 999	53	0.60 001	9.98 671	3	54
7	9.38 721	50	9.40 052	54	0.59 948	9.98 668	3	53
8	9.38 771	50	9.40 106	53	0.59 894	9.98 665	3	52
9	9.38 821	50	9.40 159	53	0.59 841	9.98 662	3	51
10	9.38 871	50	9.40 212	54	0.59 788	9.98 659	3	50
11	9.38 921	50	9.40 266	53	0.59 734	9.98 656	4	49
12	9.38 971	50	9.40 319	53	0.59 681	9.98 652	3	48
13	9.39 021	50	9.40 372	53	0.59 628	9.98 649	3	47
14	9.39 071	50	9.40 425	53	0.59 575	9.98 646	3	46
15	9.39 121	49	9.40 478	53	0.59 522	9.98 643	3	45
16	9.39 170	50	9.40 531	53	0.59 469	9.98 640	4	44
17	9.39 220	50	9.40 584	52	0.59 416	9.98 636	3	43
18	9.39 270	49	9.40 636	53	0.59 364	9.98 633	3	42
19	9.39 319	50	9.40 689	53	0.59 311	9.98 630	3	41
20	9.39 369	49	9.40 742	53	0.59 258	9.98 627	4	40
21	9.39 418	49	9.40 795	52	0.59 205	9.98 623	3	39
22	9.39 467	50	9.40 847	53	0.59 153	9.98 620	3	38
23	9.39 517	49	9.40 900	52	0.59 100	9.98 617	3	37
24	9.39 566	49	9.40 952	53	0.59 048	9.98 614	4	36
25	9.39 615	49	9.41 005	52	0.58 995	9.98 610	3	35
26	9.39 664	49	9.41 057	52	0.58 943	9.98 607	3	34
27	9.39 713	49	9.41 109	52	0.58 891	9.98 604	3	33
28	9.39 762	49	9.41 161	53	0.58 839	9.98 601	4	32
29	9.39 811	49	9.41 214	52	0.58 786	9.98 597	3	31
30	9.39 860	49	9.41 266	52	0.58 734	9.98 594	3	30
31	9.39 909	49	9.41 318	52	0.58 682	9.98 591	3	29
32	9.39 958	48	9.41 370	52	0.58 630	9.98 588	4	28
33	9.40 006	49	9.41 422	52	0.58 578	9.98 584	3	27
34	9.40 055	48	9.41 474	52	0.58 526	9.98 581	3	26
35	9.40 103	49	9.41 526	52	0.58 474	9.98 578	4	25
36	9.40 152	48	9.41 578	51	0.58 422	9.98 574	3	24
37	9.40 200	49	9.41 629	52	0.58 371	9.98 571	3	23
38	9.40 249	48	9.41 681	52	0.58 319	9.98 568	3	22
39	9.40 297	49	9.41 733	51	0.58 267	9.98 565	4	21
40	9.40 346	48	9.41 784	52	0.58 216	9.98 561	3	20
41	9.40 394	48	9.41 836	51	0.58 164	9.98 558	3	19
42	9.40 442	48	9.41 887	52	0.58 113	9.98 555	4	18
43	9.40 490	48	9.41 939	51	0.58 061	9.98 551	3	17
44	9.40 538	48	9.41 990	51	0.58 010	9.98 548	3	16
45	9.40 586	48	9.42 041	52	0.57 959	9.98 545	4	15
46	9.40 634	48	9.42 093	51	0.57 907	9.98 541	3	14
47	9.40 682	48	9.42 144	51	0.57 856	9.98 538	3	13
48	9.40 730	48	9.42 195	51	0.57 805	9.98 535	4	12
49	9.40 778	47	9.42 246	51	0.57 754	9.98 531	3	11
50	9.40 825	48	9.42 297	51	0.57 703	9.98 528	3	10
51	9.40 873	48	9.42 348	51	0.57 652	9.98 525	4	9
52	9.40 921	47	9.42 399	51	0.57 601	9.98 521	3	8
53	9.40 968	48	9.42 450	51	0.57 550	9.98 518	3	7
54	9.41 016	47	9.42 501	51	0.57 499	9.98 515	4	6
55	9.41 063	48	9.42 552	51	0.57 448	9.98 511	3	5
56	9.41 111	47	9.42 603	50	0.57 397	9.98 508	3	4
57	9.41 158	47	9.42 653	51	0.57 347	9.98 505	4	3
58	9.41 205	47	9.42 704	51	0.57 296	9.98 501	3	2
59	9.41 252	48	9.42 755	50	0.57 245	9.98 498	4	1
60	9.41 300		9.42 805		0.57 195	9.98 494		0
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′

Proportional Parts

	54	53
1	5.4	5.3
2	10.8	10.6
3	16.2	15.9
4	21.6	21.2
5	27.0	26.5
6	32.4	31.8
7	37.8	37.1
8	43.2	42.4
9	48.6	47.7

	52	51	50
1	5.2	5.1	5.0
2	10.4	10.2	10.0
3	15.6	15.3	15.0
4	20.8	20.4	20.0
5	26.0	25.5	25.0
6	31.2	30.6	30.0
7	36.4	35.7	35.0
8	41.6	40.8	40.0
9	46.8	45.9	45.0

	49	48	47
1	4.9	4.8	4.7
2	9.8	9.6	9.4
3	14.7	14.4	14.1
4	19.6	19.2	18.8
5	24.5	24.0	23.5
6	29.4	28.8	28.2
7	34.3	33.6	32.9
8	39.2	38.4	37.6
9	44.1	43.2	42.3

	4	3
1	0.4	0.3
2	0.8	0.6
3	1.2	0.9
4	1.6	1.2
5	2.0	1.5
6	2.4	1.8
7	2.8	2.1
8	3.2	2.4
9	3.6	2.7

Proportional Parts

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.41 300	47	9.42 805	51	0.57 195	9.98 494	3	60
	1	9.41 347	47	9.42 856	50	0.57 144	9.98 491	3	59
	2	9.41 394	47	9.42 906	51	0.57 094	9.98 488	4	58
	3	9.41 441	47	9.42 957	50	0.57 043	9.98 484	3	57
	4	9.41 488	47	9.43 007	50	0.56 993	9.98 481	4	56
	5	9.41 535	47	9.43 057	51	0.56 943	9.98 477	3	55
51 50 49	6	9.41 582	46	9.43 108	50	0.56 892	9.98 474	3	54
1 5.1 5.0 4.9	7	9.41 628	47	9.43 158	50	0.56 842	9.98 471	4	53
2 10.2 10.0 9.8	8	9.41 675	47	9.43 208	50	0.56 792	9.98 467	3	52
3 15.3 15.0 14.7	9	9.41 722	46	9.43 258	50	0.56 742	9.98 464	4	51
4 20.4 20.0 19.6	10	9.41 768	47	9.43 308	50	0.56 692	9.98 460	3	50
5 25.5 25.0 24.5	11	9.41 815	46	9.43 358	50	0.56 642	9.98 457	4	49
6 30.6 30.0 29.4	12	9.41 861	47	9.43 408	50	0.56 592	9.98 453	3	48
7 35.7 35.0 34.3	13	9.41 908	46	9.43 458	50	0.56 542	9.98 450	3	47
8 40.8 40.0 39.2	14	9.41 954	47	9.43 508	50	0.56 492	9.98 447	4	46
9 45.9 45.0 44.1	15	9.42 001	46	9.43 558	49	0.56 442	9.98 443	3	45
	16	9.42 047	46	9.43 607	50	0.56 393	9.98 440	4	44
	17	9.42 093	47	9.43 657	50	0.56 343	9.98 436	3	43
	18	9.42 140	46	9.43 707	49	0.56 293	9.98 433	4	42
	19	9.42 186	46	9.43 756	50	0.56 244	9.98 429	3	41
48 47 46	20	9.42 232	46	9.43 806	49	0.56 194	9.98 426	4	40
1 4.8 4.7 4.6	21	9.42 278	46	9.43 855	50	0.56 145	9.98 422	3	39
2 9.6 9.4 9.2	22	9.42 324	46	9.43 905	49	0.56 095	9.98 419	4	38
3 14.4 14.1 13.8	23	9.42 370	46	9.43 954	50	0.56 046	9.98 415	3	37
4 19.2 18.8 18.4	24	9.42 416	46	9.44 004	49	0.55 996	9.98 412	3	36
5 24.0 23.5 23.0	25	9.42 461	45	9.44 053	49	0.55 947	9.98 409	4	35
6 28.8 28.2 27.6	26	9.42 507	46	9.44 102	49	0.55 898	9.98 405	3	34
7 33.6 32.9 32.2	27	9.42 553	46	9.44 151	50	0.55 849	9.98 402	4	33
8 38.4 37.6 36.8	28	9.42 599	46	9.44 201	49	0.55 799	9.98 398	3	32
9 43.2 42.3 41.4	29	9.42 644	45	9.44 250	49	0.55 750	9.98 395	4	31
	30	9.42 690	46	9.44 299	49	0.55 701	9.98 391	3	30
	31	9.42 735	45	9.44 348	49	0.55 652	9.98 388	4	29
	32	9.42 781	46	9.44 397	49	0.55 603	9.98 384	3	28
	33	9.42 826	45	9.44 446	49	0.55 554	9.98 381	4	27
45 44	34	9.42 872	46	9.44 495	49	0.55 505	9.98 377	4	26
1 4.5 4.4	35	9.42 917	45	9.44 544	48	0.55 456	9.98 373	3	25
2 9.0 8.8	36	9.42 962	45	9.44 592	49	0.55 408	9.98 370	4	24
3 13.5 13.2	37	9.43 008	46	9.44 641	49	0.55 359	9.98 366	3	23
4 18.0 17.6	38	9.43 053	45	9.44 690	48	0.55 310	9.98 363	4	22
5 22.5 22.0	39	9.43 098	45	9.44 738	49	0.55 262	9.98 359	3	21
6 27.0 26.4	40	9.43 143	45	9.44 787	49	0.55 213	9.98 356	4	20
7 31.5 30.8	41	9.43 188	45	9.44 836	48	0.55 164	9.98 352	3	19
8 36.0 35.2	42	9.43 233	45	9.44 884	49	0.55 116	9.98 349	4	18
9 40.5 39.6	43	9.43 278	45	9.44 933	48	0.55 067	9.98 345	3	17
	44	9.43 323	44	9.44 981	48	0.55 019	9.98 342	4	16
	45	9.43 367	44	9.45 029	49	0.54 971	9.98 338	4	15
	46	9.43 412	45	9.45 078	48	0.54 922	9.98 334	4	14
4 3	47	9.43 457	45	9.45 126	48	0.54 874	9.98 331	4	13
1 0.4 0.3	48	9.43 502	44	9.45 174	48	0.54 826	9.98 327	3	12
2 0.8 0.6	49	9.43 546	45	9.45 222	49	0.54 778	9.98 324	4	11
3 1.2 0.9	50	9.43 591	44	9.45 271	48	0.54 729	9.98 320	3	10
4 1.6 1.2	51	9.43 635	45	9.45 319	48	0.54 681	9.98 317	4	9
5 2.0 1.5	52	9.43 680	44	9.45 367	48	0.54 633	9.98 313	4	8
6 2.4 1.8	53	9.43 724	45	9.45 415	48	0.54 585	9.98 309	3	7
7 2.8 2.1	54	9.43 769	44	9.45 463	48	0.54 537	9.98 306	4	6
8 3.2 2.4	55	9.43 813	44	9.45 511	48	0.54 489	9.98 302	3	5
9 3.6 2.7	56	9.43 857	44	9.45 559	47	0.54 441	9.98 299	4	4
	57	9.43 901	45	9.45 606	48	0.54 394	9.98 295	4	3
	58	9.43 946	44	9.45 654	48	0.54 346	9.98 291	3	2
	59	9.43 990	44	9.45 702	48	0.54 298	9.98 288	4	1
	60	9.44 034		9.45 750		0.54 250	9.98 284		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.44 034	44	9.45 750	47	0.54 250	9.98 284	3	60	
1	9.44 078	44	9.45 797	48	0.54 203	9.98 281	4	59	
2	9.44 122	44	9.45 845	47	0.54 155	9.98 277	4	58	
3	9.44 166	44	9.45 892	48	0.54 108	9.98 273	3	57	
4	9.44 210	43	9.45 940	47	0.54 060	9.98 270	4	56	
5	9.44 253	44	9.45 987	48	0.54 013	9.98 266	4	55	
6	9.44 297	44	9.46 035	47	0.53 965	9.98 262	3	54	
7	9.44 341	44	9.46 082	48	0.53 918	9.98 259	4	53	
8	9.44 385	43	9.46 130	47	0.53 870	9.98 255	4	52	
9	9.44 428	44	9.46 177	47	0.53 823	9.98 251	3	51	
10	9.44 472	44	9.46 224	47	0.53 776	9.98 248	4	50	
11	9.44 516	43	9.46 271	48	0.53 729	9.98 244	4	49	
12	9.44 559	43	9.46 319	47	0.53 681	9.98 240	4	48	
13	9.44 602	44	9.46 366	47	0.53 634	9.98 237	3	47	
14	9.44 646	43	9.46 413	47	0.53 587	9.98 233	4	46	
15	9.44 689	44	9.46 460	47	0.53 540	9.98 229	4	45	
16	9.44 733	43	9.46 507	47	0.53 493	9.98 226	3	44	
17	9.44 776	43	9.46 554	47	0.53 446	9.98 222	4	43	
18	9.44 819	43	9.46 601	47	0.53 399	9.98 218	4	42	
19	9.44 862	43	9.46 648	46	0.53 352	9.98 215	3	41	
20	9.44 905	43	9.46 694	47	0.53 306	9.98 211	4	40	
21	9.44 948	44	9.46 741	47	0.53 259	9.98 207	4	39	
22	9.44 992	43	9.46 788	47	0.53 212	9.98 204	3	38	
23	9.45 035	42	9.46 835	46	0.53 165	9.98 200	4	37	
24	9.45 077	43	9.46 881	47	0.53 119	9.98 196	4	36	
25	9.45 120	43	9.46 928	47	0.53 072	9.98 192	4	35	
26	9.45 163	43	9.46 975	46	0.53 025	9.98 189	3	34	
27	9.45 206	43	9.47 021	47	0.52 979	9.98 185	4	33	
28	9.45 249	43	9.47 068	46	0.52 932	9.98 181	4	32	
29	9.45 292	42	9.47 114	46	0.52 886	9.98 177	4	31	
30	9.45 334	43	9.47 160	47	0.52 840	9.98 174	3	30	
31	9.45 377	42	9.47 207	46	0.52 793	9.98 170	4	29	
32	9.45 419	43	9.47 253	46	0.52 747	9.98 166	4	28	
33	9.45 462	42	9.47 299	47	0.52 701	9.98 162	4	27	
34	9.45 504	43	9.47 346	46	0.52 654	9.98 159	3	26	
35	9.45 547	42	9.47 392	46	0.52 608	9.98 155	4	25	
36	9.45 589	43	9.47 438	46	0.52 562	9.98 151	4	24	
37	9.45 632	42	9.47 484	46	0.52 516	9.98 147	4	23	
38	9.45 674	42	9.47 530	46	0.52 470	9.98 144	3	22	
39	9.45 716	42	9.47 576	46	0.52 424	9.98 140	4	21	
40	9.45 758	43	9.47 622	46	0.52 378	9.98 136	4	20	
41	9.45 801	42	9.47 668	46	0.52 332	9.98 132	4	19	
42	9.45 843	42	9.47 714	46	0.52 286	9.98 129	3	18	
43	9.45 885	42	9.47 760	46	0.52 240	9.98 125	4	17	
44	9.45 927	42	9.47 806	46	0.52 194	9.98 121	4	16	
45	9.45 969	42	9.47 852	46	0.52 148	9.98 117	4	15	
46	9.46 011	42	9.47 897	45	0.52 103	9.98 113	4	14	
47	9.46 053	42	9.47 943	46	0.52 057	9.98 110	3	13	
48	9.46 095	41	9.47 989	46	0.52 011	9.98 106	4	12	
49	9.46 136	42	9.48 035	46	0.51 965	9.98 102	4	11	
50	9.46 178	42	9.48 080	45	0.51 920	9.98 098	4	10	
51	9.46 220	42	9.48 126	46	0.51 874	9.98 094	4	9	
52	9.46 262	41	9.48 171	45	0.51 829	9.98 090	4	8	
53	9.46 303	42	9.48 217	46	0.51 783	9.98 087	3	7	
54	9.46 345	41	9.48 262	45	0.51 738	9.98 083	4	6	
55	9.46 386	42	9.48 307	45	0.51 693	9.98 079	4	5	
56	9.46 428	41	9.48 353	46	0.51 647	9.98 075	4	4	
57	9.46 469	42	9.48 398	45	0.51 602	9.98 071	4	3	
58	9.46 511	41	9.48 443	46	0.51 557	9.98 067	4	2	
59	9.46 552	42	9.48 489	46	0.51 511	9.98 063	3	1	
60	9.46 594		9.48 534		0.51 466	9.98 060		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	48	47	46
1	4.8	4.7	4.6
2	9.6	9.4	9.2
3	14.4	14.1	13.8
4	19.2	18.8	18.4
5	24.0	23.5	23.0
6	28.8	28.2	27.6
7	33.6	32.9	32.2
8	38.4	37.6	36.8
9	43.2	42.3	41.4

	45	44	43
1	4.5	4.4	4.3
2	9.0	8.8	8.6
3	13.5	13.2	12.9
4	18.0	17.6	17.2
5	22.5	22.0	21.5
6	27.0	26.4	25.8
7	31.5	30.8	30.1
8	36.0	35.2	34.4
9	40.5	39.6	38.7

	42	41
1	4.2	4.1
2	8.4	8.2
3	12.6	12.3
4	16.8	16.4
5	21.0	20.5
6	25.2	24.6
7	29.4	28.7
8	33.6	32.8
9	37.8	36.9

′	4	3
1	0.4	0.3
2	0.8	0.6
3	1.2	0.9
4	1.6	1.2
5	2.0	1.5
6	2.4	1.8
7	2.8	2.1
8	3.2	2.4
9	3.6	2.7

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.46 594	41	9.48 534	45	0.51 466	9.98 060	4	60
	1	9.46 635	41	9.48 579	45	0.51 421	9.98 056	4	59
	2	9.46 676	41	9.48 624	45	0.51 376	9.98 052	4	58
	3	9.46 717	41	9.48 669	45	0.51 331	9.98 048	4	57
	4	9.46 758	42	9.48 714	45	0.51 286	9.98 044	4	56
	5	9.46 800	41	9.48 759	45	0.51 241	9.98 040	4	55
	6	9.46 841	41	9.48 804	45	0.51 196	9.98 036	4	54
	7	9.46 882	41	9.48 849	45	0.51 151	9.98 032	4	53
	8	9.46 923	41	9.48 894	45	0.51 106	9.98 029	3	52
	9	9.46 964	41	9.48 939	45	0.51 061	9.98 025	4	51
45 44 43	10	9.47 005	40	9.48 984	45	0.51 016	9.98 021	4	50
1 4.5 4.4 4.3	11	9.47 045	41	9.49 029	44	0.50 971	9.98 017	4	49
2 9.0 8.8 8.6	12	9.47 086	41	9.49 073	45	0.50 927	9.98 013	4	48
3 13.5 13.2 12.9	13	9.47 127	41	9.49 118	45	0.50 882	9.98 009	4	47
4 18.0 17.6 17.2	14	9.47 168	41	9.49 163	44	0.50 837	9.98 005	4	46
5 22.5 22.0 21.5	15	9.47 209	40	9.49 207	45	0.50 793	9.98 001	4	45
6 27.0 26.4 25.8	16	9.47 249	41	9.49 252	44	0.50 748	9.97 997	4	44
7 31.5 30.8 30.1	17	9.47 290	40	9.49 296	45	0.50 704	9.97 993	4	43
8 36.0 35.2 34.4	18	9.47 330	41	9.49 341	44	0.50 659	9.97 989	3	42
9 40.5 39.6 38.7	19	9.47 371	40	9.49 385	45	0.50 615	9.97 986	4	41
	20	9.47 411	41	9.49 430	44	0.50 570	9.97 982	4	40
	21	9.47 452	40	9.49 474	45	0.50 526	9.97 978	4	39
	22	9.47 492	41	9.49 519	44	0.50 481	9.97 974	4	38
	23	9.47 533	40	9.49 563	44	0.50 437	9.97 970	4	37
	24	9.47 573	40	9.49 607	45	0.50 393	9.97 966	4	36
	25	9.47 613	41	9.49 652	44	0.50 348	9.97 962	4	35
	26	9.47 654	40	9.49 696	44	0.50 304	9.97 958	4	34
42 41 40	27	9.47 694	40	9.49 740	44	0.50 260	9.97 954	4	33
1 4.2 4.1 4.0	28	9.47 734	40	9.49 784	44	0.50 216	9.97 950	4	32
2 8.4 8.2 8.0	29	9.47 774	40	9.49 828	44	0.50 172	9.97 946	4	31
3 12.6 12.3 12.0	30	9.47 814	40	9.49 872	44	0.50 128	9.97 942	4	30
4 16.8 16.4 16.0	31	9.47 854	40	9.49 916	44	0.50 084	9.97 938	4	29
5 21.0 20.5 20.0	32	9.47 894	40	9.49 960	44	0.50 040	9.97 934	4	28
6 25.2 24.6 24.0	33	9.47 934	40	9.50 004	44	0.49 996	9.97 930	4	27
7 29.4 28.7 28.0	34	9.47 974	40	9.50 048	44	0.49 952	9.97 926	4	26
8 33.6 32.8 32.0	35	9.48 014	40	9.50 092	44	0.49 908	9.97 922	4	25
9 37.8 36.9 36.0	36	9.48 054	40	9.50 136	44	0.49 864	9.97 918	4	24
	37	9.48 094	39	9.50 180	43	0.49 820	9.97 914	4	23
	38	9.48 133	40	9.50 223	44	0.49 777	9.97 910	4	22
	39	9.48 173	40	9.50 267	44	0.49 733	9.97 906	4	21
	40	9.48 213	39	9.50 311	44	0.49 689	9.97 902	4	20
	41	9.48 252	40	9.50 355	43	0.49 645	9.97 898	4	19
	42	9.48 292	40	9.50 398	44	0.49 602	9.97 894	4	18
	43	9.48 332	39	9.50 442	43	0.49 558	9.97 890	4	17
39 5 4 3	44	9.48 371	40	9.50 485	44	0.49 515	9.97 886	4	16
1 3.9 0.5 0.4 0.3	45	9.48 411	39	9.50 529	43	0.49 471	9.97 882	4	15
2 7.8 1.0 0.8 0.6	46	9.48 450	40	9.50 572	44	0.49 428	9.97 878	4	14
3 11.7 1.5 1.2 0.9	47	9.48 490	39	9.50 616	43	0.49 384	9.97 874	4	13
4 15.6 2.0 1.6 1.2	48	9.48 529	39	9.50 659	44	0.49 341	9.97 870	4	12
5 19.5 2.5 2.0 1.5	49	9.48 568	39	9.50 703	43	0.49 297	9.97 866	5	11
6 23.4 3.0 2.4 1.8	50	9.48 607	40	9.50 746	43	0.49 254	9.97 861	4	10
7 27.3 3.5 2.8 2.1	51	9.48 647	39	9.50 789	44	0.49 211	9.97 857	4	9
8 31.2 4.0 3.2 2.4	52	9.48 686	39	9.50 833	43	0.49 167	9.97 853	4	8
9 35.1 4.5 3.6 2.7	53	9.48 725	39	9.50 876	43	0.49 124	9.97 849	4	7
	54	9.48 764	39	9.50 919	43	0.49 081	9.97 845	4	6
	55	9.48 803	39	9.50 962	43	0.49 038	9.97 841	4	5
	56	9.48 842	39	9.51 005	43	0.48 995	9.97 837	4	4
	57	9.48 881	39	9.51 048	44	0.48 952	9.97 833	4	3
	58	9.48 920	39	9.51 092	43	0.48 908	9.97 829	4	2
	59	9.48 959	39	9.51 135	43	0.48 865	9.97 825	4	1
	60	9.48 998		9.51 178		0.48 822	9.97 821		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.48 998		9.51 178		0.48 822	9.97 821		60	
		39		43			4		
1	9.49 037		9.51 221		0.48 779	9.97 817		59	
		39		43			5		
2	9.49 076		9.51 264		0.48 736	9.97 812		58	
		39		42			4		
3	9.49 115		9.51 306		0.48 694	9.97 808		57	
		38		43			4		
4	9.49 153		9.51 349		0.48 651	9.97 804		56	
		39		43			4		
5	9.49 192		9.51 392		0.48 608	9.97 800		55	
		39		43			4		
6	9.49 231		9.51 435		0.48 565	9.97 796		54	
		38		43			4		
7	9.49 269		9.51 478		0.48 522	9.97 792		53	
		39		42			4		
8	9.49 308		9.51 520		0.48 480	9.97 788		52	
		39		43			4		
9	9.49 347		9.51 563		0.48 437	9.97 784		51	
		38		43			5		
10	9.49 385		9.51 606		0.48 394	9.97 779		50	
		39		42			4		
11	9.49 424		9.51 648		0.48 352	9.97 775		49	
		38		43			4		
12	9.49 462		9.51 691		0.48 309	9.97 771		48	
		38		43			4		
13	9.49 500		9.51 734		0.48 266	9.97 767		47	
		39		42			4		
14	9.49 539		9.51 776		0.48 224	9.97 763		46	
		38		43			4		
15	9.49 577		9.51 819		0.48 181	9.97 759		45	
		38		42			5		
16	9.49 615		9.51 861		0.48 139	9.97 754		44	
		39		42			4		
17	9.49 654		9.51 903		0.48 097	9.97 750		43	
		38		43			4		
18	9.49 692		9.51 946		0.48 054	9.97 746		42	
		38		42			4		
19	9.49 730		9.51 988		0.48 012	9.97 742		41	
		38		43			4		
20	9.49 768		9.52 031		0.47 969	9.97 738		40	
		38		42			4		
21	9.49 806		9.52 073		0.47 927	9.97 734		39	
		38		42			5		
22	9.49 844		9.52 115		0.47 885	9.97 729		38	
		38		42			4		
23	9.49 882		9.52 157		0.47 843	9.97 725		37	
		38		43			4		
24	9.49 920		9.52 200		0.47 800	9.97 721		36	
		38		42			4		
25	9.49 958		9.52 242		0.47 758	9.97 717		35	
		38		42			4		
26	9.49 996		9.52 284		0.47 716	9.97 713		34	
		38		42			5		
27	9.50 034		9.52 326		0.47 674	9.97 708		33	
		38		42			4		
28	9.50 072		9.52 368		0.47 632	9.97 704		32	
		38		42			4		
29	9.50 110		9.52 410		0.47 590	9.97 700		31	
		38		42			4		
30	9.50 148		9.52 452		0.47 548	9.97 696		30	
		37		42			5		
31	9.50 185		9.52 494		0.47 506	9.97 691		29	
		38		42			4		
32	9.50 223		9.52 536		0.47 464	9.97 687		28	
		38		42			4		
33	9.50 261		9.52 578		0.47 422	9.97 683		27	
		37		42			4		
34	9.50 298		9.52 620		0.47 380	9.97 679		26	
		38		41			5		
35	9.50 336		9.52 661		0.47 339	9.97 674		25	
		38		42			4		
36	9.50 374		9.52 703		0.47 297	9.97 670		24	
		37		42			4		
37	9.50 411		9.52 745		0.47 255	9.97 666		23	
		38		42			4		
38	9.50 449		9.52 787		0.47 213	9.97 662		22	
		37		42			5		
39	9.50 486		9.52 829		0.47 171	9.97 657		21	
		37		41			4		
40	9.50 523		9.52 870		0.47 130	9.97 653		20	
		38		42			4		
41	9.50 561		9.52 912		0.47 088	9.97 649		19	
		37		41			4		
42	9.50 598		9.52 953		0.47 047	9.97 645		18	
		37		42			5		
43	9.50 635		9.52 995		0.47 005	9.97 640		17	
		38		42			4		
44	9.50 673		9.53 037		0.46 963	9.97 636		16	
		37		41			4		
45	9.50 710		9.53 078		0.46 922	9.97 632		15	
		37		42			4		
46	9.50 747		9.53 120		0.46 880	9.97 628		14	
		37		41			5		
47	9.50 784		9.53 161		0.46 839	9.97 623		13	
		37		41			4		
48	9.50 821		9.53 202		0.46 798	9.97 619		12	
		37		42			4		
49	9.50 858		9.53 244		0.46 756	9.97 615		11	
		38		41			5		
50	9.50 896		9.53 285		0.46 715	9.97 610		10	
		37		42			4		
51	9.50 933		9.53 327		0.46 673	9.97 606		9	
		37		41			4		
52	9.50 970		9.53 368		0.46 632	9.97 602		8	
		37		41			5		
53	9.51 007		9.53 409		0.46 591	9.97 597		7	
		36		41			4		
54	9.51 043		9.53 450		0.46 550	9.97 593		6	
		37		42			4		
55	9.51 080		9.53 492		0.46 508	9.97 589		5	
		37		41			5		
56	9.51 117		9.53 533		0.46 467	9.97 584		4	
		37		41			4		
57	9.51 154		9.53 574		0.46 426	9.97 580		3	
		37		41			4		
58	9.51 191		9.53 615		0.46 385	9.97 576		2	
		36		41			5		
59	9.51 227		9.53 656		0.46 344	9.97 571		1	
		37		41			4		
60	9.51 264		9.53 697		0.46 303	9.97 567		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	43	42	41
1	4.3	4.2	4.1
2	8.6	8.4	8.2
3	12.9	12.6	12.3
4	17.2	16.8	16.4
5	21.5	21.0	20.5
6	25.8	25.2	24.6
7	30.1	29.4	28.7
8	34.4	33.6	32.8
9	38.7	37.8	36.9

	39	38	37
1	3.9	3.8	3.7
2	7.8	7.6	7.4
3	11.7	11.4	11.1
4	15.6	15.2	14.8
5	19.5	19.0	18.5
6	23.4	22.8	22.2
7	27.3	26.6	25.9
8	31.2	30.4	29.6
9	35.1	34.2	33.3

	36	5	4
1	3.6	0.5	0.4
2	7.2	1.0	0.8
3	10.8	1.5	1.2
4	14.4	2.0	1.6
5	18.0	2.5	2.0
6	21.6	3.0	2.4
7	25.2	3.5	2.8
8	28.8	4.0	3.2
9	32.4	4.5	3.6

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.51 264	37	9.53 697	41	0.46 303	9.97 567	4	60
	1	9.51 301	37	9.53 738	41	0.46 262	9.97 563	5	59
	2	9.51 338	36	9.53 779	41	0.46 221	9.97 558	4	58
	3	9.51 374	37	9.53 820	41	0.46 180	9.97 554	4	57
	4	9.51 411	36	9.53 861	41	0.46 139	9.97 550	5	56
	5	9.51 447	37	9.53 902	41	0.46 098	9.97 545	4	55
	6	9.51 484	36	9.53 943	41	0.46 057	9.97 541	5	54
	7	9.51 520	37	9.53 984	41	0.46 016	9.97 536	4	53
	8	9.51 557	36	9.54 025	40	0.45 975	9.97 532	4	52
41 40 39	9	9.51 593	36	9.54 065	41	0.45 935	9.97 528	5	51
1 4.1 4.0 3.9	10	9.51 629	37	9.54 106	41	0.45 894	9.97 523	4	50
2 8.2 8.0 7.8	11	9.51 666	36	9.54 147	40	0.45 853	9.97 519	4	49
3 12.3 12.0 11.7	12	9.51 702	36	9.54 187	41	0.45 813	9.97 515	5	48
4 16.4 16.0 15.6	13	9.51 738	36	9.54 228	41	0.45 772	9.97 510	4	47
5 20.5 20.0 19.5	14	9.51 774	36	9.54 269	41	0.45 731	9.97 506	5	46
6 24.6 24.0 23.4	15	9.51 811	37	9.54 309	40	0.45 691	9.97 501	4	45
7 28.7 28.0 27.3	16	9.51 847	36	9.54 350	41	0.45 650	9.97 497	4	44
8 32.8 32.0 31.2	17	9.51 883	36	9.54 390	40	0.45 610	9.97 492	5	43
9 36.9 36.0 35.1	18	9.51 919	36	9.54 431	41	0.45 569	9.97 488	4	42
	19	9.51 955	36	9.54 471	40	0.45 529	9.97 484	4	41
	20	9.51 991	36	9.54 512	41	0.45 488	9.97 479	5	40
	21	9.52 027	36	9.54 552	40	0.45 448	9.97 475	4	39
	22	9.52 063	36	9.54 593	41	0.45 407	9.97 470	5	38
	23	9.52 099	36	9.54 633	40	0.45 367	9.97 466	4	37
	24	9.52 135	36	9.54 673	40	0.45 327	9.97 461	5	36
	25	9.52 171	36	9.54 714	41	0.45 286	9.97 457	4	35
	26	9.52 207	36	9.54 754	40	0.45 246	9.97 453	4	34
37 36 35	27	9.52 242	35	9.54 794	40	0.45 206	9.97 448	5	33
1 3.7 3.6 3.5	28	9.52 278	36	9.54 835	41	0.45 165	9.97 444	4	32
2 7.4 7.2 7.0	29	9.52 314	36	9.54 875	40	0.45 125	9.97 439	5	31
3 11.1 10.8 10.5	30	9.52 350	36	9.54 915	40	0.45 085	9.97 435	4	30
4 14.8 14.4 14.0	31	9.52 385	35	9.54 955	40	0.45 045	9.97 430	5	29
5 18.5 18.0 17.5	32	9.52 421	36	9.54 995	40	0.45 005	9.97 426	4	28
6 22.2 21.6 21.0	33	9.52 456	35	9.55 035	40	0.44 965	9.97 421	5	27
7 25.9 25.2 24.5	34	9.52 492	36	9.55 075	40	0.44 925	9.97 417	4	26
8 29.6 28.8 28.0	35	9.52 527	35	9.55 115	40	0.44 885	9.97 412	5	25
9 33.3 32.4 31.5	36	9.52 563	36	9.55 155	40	0.44 845	9.97 408	4	24
	37	9.52 598	35	9.55 195	40	0.44 805	9.97 403	5	23
	38	9.52 634	36	9.55 235	40	0.44 765	9.97 399	4	22
	39	9.52 669	35	9.55 275	40	0.44 725	9.97 394	5	21
	40	9.52 705	36	9.55 315	40	0.44 685	9.97 390	4	20
	41	9.52 740	35	9.55 355	40	0.44 645	9.97 385	5	19
	42	9.52 775	35	9.55 395	40	0.44 605	9.97 381	4	18
	43	9.52 811	36	9.55 434	39	0.44 566	9.97 376	5	17
	44	9.52 846	35	9.55 474	40	0.44 526	9.97 372	4	16
34 5 4	45	9.52 881	35	9.55 514	40	0.44 486	9.97 367	5	15
1 3.4 0.5 0.4	46	9.52 916	35	9.55 554	40	0.44 446	9.97 363	4	14
2 6.8 1.0 0.8	47	9.52 951	35	9.55 593	39	0.44 407	9.97 358	5	13
3 10.2 1.5 1.2	48	9.52 986	35	9.55 633	40	0.44 367	9.97 353	5	12
4 13.6 2.0 1.6	49	9.53 021	35	9.55 673	40	0.44 327	9.97 349	4	11
5 17.0 2.5 2.0	50	9.53 056	35	9.55 712	39	0.44 288	9.97 344	5	10
6 20.4 3.0 2.4	51	9.53 092	36	9.55 752	40	0.44 248	9.97 340	4	9
7 23.8 3.5 2.8	52	9.53 126	34	9.55 791	39	0.44 209	9.97 335	5	8
8 27.2 4.0 3.2	53	9.53 161	35	9.55 831	40	0.44 169	9.97 331	4	7
9 30.6 4.5 3.6	54	9.53 196	35	9.55 870	39	0.44 130	9.97 326	5	6
	55	9.53 231	35	9.55 910	40	0.44 090	9.97 322	4	5
	56	9.53 266	35	9.55 949	39	0.44 051	9.97 317	5	4
	57	9.53 301	35	9.55 989	40	0.44 011	9.97 312	4	3
	58	9.53 336	34	9.56 028	39	0.43 972	9.97 308	5	2
	59	9.53 370	35	9.56 067	39	0.43 933	9.97 303	4	1
	60	9.53 405		9.56 107	40	0.43 893	9.97 299		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.53 405	35	9.56 107	39	0.43 893	9.97 299	5	60	
1	9.53 440	35	9.56 146	39	0.43 854	9.97 294	5	59	
2	9.53 475	34	9.56 185	39	0.43 815	9.97 289	4	58	
3	9.53 509	35	9.56 224	40	0.43 776	9.97 285	5	57	
4	9.53 544	34	9.56 264	39	0.43 736	9.97 280	4	56	
5	9.53 578	35	9.56 303	39	0.43 697	9.97 276	5	55	
6	9.53 613	34	9.56 342	39	0.43 658	9.97 271	5	54	
7	9.53 647	35	9.56 381	39	0.43 619	9.97 266	4	53	
8	9.53 682	34	9.56 420	39	0.43 580	9.97 262	5	52	
9	9.53 716	35	9.56 459	39	0.43 541	9.97 257	5	51	40 39 38
10	9.53 751	34	9.56 498	39	0.43 502	9.97 252	4	50	1 4.0 3.9 3.8
11	9.53 785	34	9.56 537	39	0.43 463	9.97 248	5	49	2 8.0 7.8 7.6
12	9.53 819	35	9.56 576	39	0.43 424	9.97 243	5	48	3 12.0 11.7 11.4
13	9.53 854	34	9.56 615	39	0.43 385	9.97 238	4	47	4 16.0 15.6 15.2
14	9.53 888	34	9.56 654	39	0.43 346	9.97 234	5	46	5 20.0 19.5 19.0
15	9.53 922	35	9.56 693	39	0.43 307	9.97 229	5	45	6 24.0 23.4 22.8
16	9.53 957	34	9.56 732	39	0.43 268	9.97 224	5	44	7 28.0 27.3 26.6
17	9.53 991	34	9.56 771	39	0.43 229	9.97 220	4	43	8 32.0 31.2 30.4
18	9.54 025	34	9.56 810	39	0.43 190	9.97 215	5	42	9 36.0 35.1 34.2
19	9.54 059	34	9.56 849	38	0.43 151	9.97 210	5	41	
20	9.54 093	34	9.56 887	39	0.43 113	9.97 206	4	40	
21	9.54 127	34	9.56 926	39	0.43 074	9.97 201	5	39	
22	9.54 161	34	9.56 965	39	0.43 035	9.97 196	5	38	
23	9.54 195	34	9.57 004	38	0.42 996	9.97 192	4	37	
24	9.54 229	34	9.57 042	39	0.42 958	9.97 187	5	36	
25	9.54 263	34	9.57 081	39	0.42 919	9.97 182	5	35	
26	9.54 297	34	9.57 120	38	0.42 880	9.97 178	4	34	37 35 34
27	9.54 331	34	9.57 158	39	0.42 842	9.97 173	5	33	1 3.7 3.5 3.4
28	9.54 365	34	9.57 197	38	0.42 803	9.97 168	5	32	2 7.4 7.0 6.8
29	9.54 399	34	9.57 235	39	0.42 765	9.97 163	5	31	3 11.1 10.5 10.2
30	9.54 433	33	9.57 274	38	0.42 726	9.97 159	4	30	4 14.8 14.0 13.6
31	9.54 466	34	9.57 312	39	0.42 688	9.97 154	5	29	5 18.5 17.5 17.0
32	9.54 500	34	9.57 351	38	0.42 649	9.97 149	5	28	6 22.2 21.0 20.4
33	9.54 534	33	9.57 389	39	0.42 611	9.97 145	4	27	7 25.9 24.5 23.8
34	9.54 567	34	9.57 428	38	0.42 572	9.97 140	5	26	8 29.6 28.0 27.2
35	9.54 601	34	9.57 466	38	0.42 534	9.97 135	5	25	9 33.3 31.5 30.6
36	9.54 635	33	9.57 504	39	0.42 496	9.97 130	5	24	
37	9.54 668	34	9.57 543	38	0.42 457	9.97 126	4	23	
38	9.54 702	33	9.57 581	38	0.42 419	9.97 121	5	22	
39	9.54 735	34	9.57 619	39	0.42 381	9.97 116	5	21	
40	9.54 769	33	9.57 658	38	0.42 342	9.97 111	5	20	
41	9.54 802	34	9.57 696	38	0.42 304	9.97 107	4	19	
42	9.54 836	33	9.57 734	38	0.42 266	9.97 102	5	18	
43	9.54 869	34	9.57 772	38	0.42 228	9.97 097	5	17	
44	9.54 903	33	9.57 810	39	0.42 190	9.97 092	5	16	33 5 4
45	9.54 936	33	9.57 849	38	0.42 151	9.97 087	5	15	1 3.3 0.5 0.4
46	9.54 969	34	9.57 887	38	0.42 113	9.97 083	5	14	2 6.6 1.0 0.8
47	9.55 003	33	9.57 925	38	0.42 075	9.97 078	5	13	3 9.9 1.5 1.2
48	9.55 036	33	9.57 963	38	0.42 037	9.97 073	5	12	4 13.2 2.0 1.6
49	9.55 069	33	9.58 001	38	0.41 999	9.97 068	5	11	5 16.5 2.5 2.0
50	9.55 102	33	9.58 039	38	0.41 961	9.97 063	5	10	6 19.8 3.0 2.4
51	9.55 136	34	9.58 077	38	0.41 923	9.97 059	4	9	7 23.1 3.5 2.8
52	9.55 169	33	9.58 115	38	0.41 885	9.97 054	5	8	8 26.4 4.0 3.2
53	9.55 202	33	9.58 153	38	0.41 847	9.97 049	5	7	9 29.7 4.5 3.6
54	9.55 235	33	9.58 191	38	0.41 809	9.97 044	5	6	
55	9.55 268	33	9.58 229	38	0.41 771	9.97 039	5	5	
56	9.55 301	33	9.58 267	37	0.41 733	9.97 035	4	4	
57	9.55 334	33	9.58 304	38	0.41 696	9.97 030	5	3	
58	9.55 367	33	9.58 342	38	0.41 658	9.97 025	5	2	
59	9.55 400	33	9.58 380	38	0.41 620	9.97 020	5	1	
60	9.55 433		9.58 418		0.41 582	9.97 015	5	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.55 433	33	9.58 418	37	0.41 582	9.97 015	5	60
	1	9.55 466	33	9.58 455	38	0.41 545	9.97 010	5	59
	2	9.55 499	33	9.58 493	38	0.41 507	9.97 005	4	58
	3	9.55 532	32	9.58 531	38	0.41 469	9.97 001	5	57
	4	9.55 564	33	9.58 569	37	0.41 431	9.96 996	5	56
	5	9.55 597	33	9.58 606	38	0.41 394	9.96 991	5	55
	6	9.55 630	33	9.58 644	37	0.41 356	9.96 986	5	54
	7	9.55 663	32	9.58 681	38	0.41 319	9.96 981	5	53
	8	9.55 695	33	9.58 719	38	0.41 281	9.96 976	5	52
38 37 36	9	9.55 728	33	9.58 757	37	0.41 243	9.96 971	5	51
1 3.8 3.7 3.6	10	9.55 761	32	9.58 794	38	0.41 206	9.96 966	4	50
2 7.6 7.4 7.2	11	9.55 793	33	9.58 832	37	0.41 168	9.96 962	5	49
3 11.4 11.1 10.8	12	9.55 826	32	9.58 869	38	0.41 131	9.96 957	5	48
4 15.2 14.8 14.4	13	9.55 858	33	9.58 907	37	0.41 093	9.96 952	5	47
5 19.0 18.5 18.0	14	9.55 891	32	9.58 944	37	0.41 056	9.96 947	5	46
6 22.8 22.2 21.6	15	9.55 923	33	9.58 981	38	0.41 019	9.96 942	5	45
7 26.6 25.9 25.2	16	9.55 956	32	9.59 019	37	0.40 981	9.96 937	5	44
8 30.4 29.6 28.8	17	9.55 988	33	9.59 056	38	0.40 944	9.96 932	5	43
9 34.2 33.3 32.4	18	9.56 021	32	9.59 094	37	0.40 906	9.96 927	5	42
	19	9.56 053	32	9.59 131	37	0.40 869	9.96 922	5	41
	20	9.56 085	33	9.59 168	37	0.40 832	9.96 917	5	40
	21	9.56 118	32	9.59 205	38	0.40 795	9.96 912	5	39
	22	9.56 150	32	9.59 243	37	0.40 757	9.96 907	4	38
	23	9.56 182	33	9.59 280	37	0.40 720	9.96 903	5	37
	24	9.56 215	32	9.59 317	37	0.40 683	9.96 898	5	36
	25	9.56 247	32	9.59 354	37	0.40 646	9.96 893	5	35
	26	9.56 279	32	9.59 391	38	0.40 609	9.96 888	5	34
33 32 31	27	9.56 311	32	9.59 429	37	0.40 571	9.96 883	5	33
1 3.3 3.2 3.1	28	9.56 343	32	9.59 466	37	0.40 534	9.96 878	5	32
2 6.6 6.4 6.2	29	9.56 375	33	9.59 503	37	0.40 497	9.96 873	5	31
3 9.9 9.6 9.3	30	9.56 408	32	9.59 540	37	0.40 460	9.96 868	5	30
4 13.2 12.8 12.4	31	9.56 440	32	9.59 577	37	0.40 423	9.96 863	5	29
5 16.5 16.0 15.5	32	9.56 472	32	9.59 614	37	0.40 386	9.96 858	5	28
6 19.8 19.2 18.6	33	9.56 504	32	9.59 651	37	0.40 349	9.96 853	5	27
7 23.1 22.4 21.7	34	9.56 536	32	9.59 688	37	0.40 312	9.96 848	5	26
8 26.4 25.6 24.8	35	9.56 568	31	9.59 725	37	0.40 275	9.96 843	5	25
9 29.7 28.8 27.9	36	9.56 599	32	9.59 762	37	0.40 238	9.96 838	5	24
	37	9.56 631	32	9.59 799	36	0.40 201	9.96 833	5	23
	38	9.56 663	32	9.59 835	37	0.40 165	9.96 828	5	22
	39	9.56 695	32	9.59 872	37	0.40 128	9.96 823	5	21
	40	9.56 727	32	9.59 909	37	0.40 091	9.96 818	5	20
	41	9.56 759	31	9.59 946	37	0.40 054	9.96 813	5	19
	42	9.56 790	32	9.59 983	36	0.40 017	9.96 808	5	18
	43	9.56 822	32	9.60 019	37	0.39 981	9.96 803	5	17
6 5 4	44	9.56 854	32	9.60 056	37	0.39 944	9.96 798	5	16
1 0.6 0.5 0.4	45	9.56 886	31	9.60 093	37	0.39 907	9.96 793	5	15
2 1.2 1.0 0.8	46	9.56 917	32	9.60 130	36	0.39 870	9.96 788	5	14
3 1.8 1.5 1.2	47	9.56 949	31	9.60 166	37	0.39 834	9.96 783	5	13
4 2.4 2.0 1.6	48	9.56 980	32	9.60 203	37	0.39 797	9.96 778	6	12
5 3.0 2.5 2.0	49	9.57 012	32	9.60 240	37	0.39 760	9.96 772	5	11
6 3.6 3.0 2.4	50	9.57 044	31	9.60 276	36	0.39 724	9.96 767	5	10
7 4.2 3.5 2.8	51	9.57 075	32	9.60 313	37	0.39 687	9.96 762	5	9
8 4.8 4.0 3.2	52	9.57 107	31	9.60 349	36	0.39 651	9.96 757	5	8
9 5.4 4.5 3.6	53	9.57 138	31	9.60 386	37	0.39 614	9.96 752	5	7
	54	9.57 169	32	9.60 422	36	0.39 578	9.96 747	5	6
	55	9.57 201	31	9.60 459	37	0.39 541	9.96 742	5	5
	56	9.57 232	32	9.60 495	36	0.39 505	9.96 737	5	4
	57	9.57 264	31	9.60 532	37	0.39 468	9.96 732	5	3
	58	9.57 295	31	9.60 568	36	0.39 432	9.96 727	5	2
	59	9.57 326	32	9.60 605	37	0.39 395	9.96 722	5	1
	60	9.57 358		9.60 641	36	0.39 359	9.96 717		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.57 358		9.60 641		0.39 359	9.96 717		60	
		31		36			6		
1	9.57 389		9.60 677		0.39 323	9.96 711		59	
		31		37			5		
2	9.57 420		9.60 714		0.39 286	9.96 706	5	58	
		31		36			5		
3	9.57 451		9.60 750		0.39 250	9.96 701		57	
		31		36			5		
4	9.57 482		9.60 786		0.39 214	9.96 696		56	
		32		37			5		
5	9.57 514		9.60 823		0.39 177	9.96 691	5	55	
		31		36			5		
6	9.57 545		9.60 859		0.39 141	9.96 686		54	
		31		36			5		
7	9.57 576		9.60 895		0.39 105	9.96 681		53	
		31		36			5		
8	9.57 607		9.60 931		0.39 069	9.96 676	6	52	
		31		36			6		
9	9.57 638		9.60 967		0.39 033	9.96 670		51	
		31		37			5		
10	9.57 669		9.61 004		0.38 996	9.96 665		50	
		31		36			5		
11	9.57 700		9.61 040		0.38 960	9.96 660		49	
		31		36			5		
12	9.57 731		9.61 076		0.38 924	9.96 655	5	48	
		31		36			5		
13	9.57 762		9.61 112		0.38 888	9.96 650		47	
		31		36			5		
14	9.57 793		9.61 148		0.38 852	9.96 645		46	
		31		36			5		
15	9.57 824		9.61 184		0.38 816	9.96 640	5	45	
		31		36			6		
16	9.57 855		9.61 220		0.38 780	9.96 634		44	
		30		36			5		
17	9.57 885		9.61 256		0.38 744	9.96 629		43	
		31		36			5		
18	9.57 916		9.61 292		0.38 708	9.96 624	5	42	
		31		36			5		
19	9.57 947		9.61 328		0.38 672	9.96 619		41	
		31		36			5		
20	9.57 978		9.61 364		0.38 636	9.96 614		40	
		30		36			6		
21	9.58 008		9.61 400		0.38 600	9.96 608		39	
		31		36			5		
22	9.58 039		9.61 436		0.38 564	9.96 603	5	38	
		31		36			5		
23	9.58 070		9.61 472		0.38 528	9.96 598		37	
		31		36			5		
24	9.58 101		9.61 508		0.38 492	9.96 593		36	
		30		36			5		
25	9.58 131		9.61 544		0.38 456	9.96 588	6	35	
		31		35			6		
26	9.58 162		9.61 579		0.38 421	9.96 582		34	
		30		36			5		
27	9.58 192		9.61 615		0.38 385	9.96 577		33	
		31		36			5		
28	9.58 223		9.61 651		0.38 349	9.96 572	5	32	
		30		36			5		
29	9.58 253		9.61 687		0.38 313	9.96 567		31	
		31		35			5		
30	9.58 284		9.61 722		0.38 278	9.96 562		30	
		30		36			6		
31	9.58 314		9.61 758		0.38 242	9.96 556		29	
		31		36			5		
32	9.58 345		9.61 794		0.38 206	9.96 551	5	28	
		30		36			5		
33	9.58 375		9.61 830		0.38 170	9.96 546		27	
		31		35			5		
34	9.58 406		9.61 865		0.38 135	9.96 541		26	
		30		36			6		
35	9.58 436		9.61 901		0.38 099	9.96 535		25	
		31		35			5		
36	9.58 467		9.61 936		0.38 064	9.96 530		24	
		30		36			5		
37	9.58 497		9.61 972		0.38 028	9.96 525		23	
		30		36			5		
38	9.58 527		9.62 008		0.37 992	9.96 520	6	22	
		30		35			5		
39	9.58 557		9.62 043		0.37 957	9.96 514		21	
		31		36			5		
40	9.58 588		9.62 079		0.37 921	9.96 509		20	
		30		35			5		
41	9.58 618		9.62 114		0.37 886	9.96 504		19	
		30		36			6		
42	9.58 648		9.62 150		0.37 850	9.96 498	5	18	
		30		35			5		
43	9.58 678		9.62 185		0.37 815	9.96 493		17	
		31		36			5		
44	9.58 709		9.62 221		0.37 779	9.96 488		16	
		30		35			5		
45	9.58 739		9.62 256		0.37 744	9.96 483	6	15	
		30		36			5		
46	9.58 769		9.62 292		0.37 708	9.96 477		14	
		30		35			5		
47	9.58 799		9.62 327		0.37 673	9.96 472		13	
		30		35			5		
48	9.58 829		9.62 362		0.37 638	9.96 467	6	12	
		30		36			5		
49	9.58 859		9.62 398		0.37 602	9.96 461		11	
		30		35			5		
50	9.58 889		9.62 433		0.37 567	9.96 456		10	
		30		35			5		
51	9.58 919		9.62 468		0.37 532	9.96 451		9	
		30		36			6		
52	9.58 949		9.62 504		0.37 496	9.96 445	5	8	
		30		35			5		
53	9.58 979		9.62 539		0.37 461	9.96 440		7	
		30		35			5		
54	9.59 009		9.62 574		0.37 426	9.96 435		6	
		30		35			6		
55	9.59 039		9.62 609		0.37 391	9.96 429	5	5	
		30		36			5		
56	9.59 069		9.62 645		0.37 355	9.96 424		4	
		29		35			5		
57	9.59 098		9.62 680		0.37 320	9.96 419		3	
		30		35			6		
58	9.59 128		9.62 715		0.37 285	9.96 413	5	2	
		30		35			5		
59	9.59 158		9.62 750		0.37 250	9.96 408		1	
		30		35			5		
60	9.59 188		9.62 785		0.37 215	9.96 403		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	37	36	35
1	3.7	3.6	3.5
2	7.4	7.2	7.0
3	11.1	10.8	10.5
4	14.8	14.4	14.0
5	18.5	18.0	17.5
6	22.2	21.6	21.0
7	25.9	25.2	24.5
8	29.6	28.8	28.0
9	33.3	32.4	31.5

	32	31	30
1	3.2	3.1	3.0
2	6.4	6.2	6.0
3	9.6	9.3	9.0
4	12.8	12.4	12.0
5	16.0	15.5	15.0
6	19.2	18.6	18.0
7	22.4	21.7	21.0
8	25.6	24.8	24.0
9	28.8	27.9	27.0

	29	6	5
1	2.9	0.6	0.5
2	5.8	1.2	1.0
3	8.7	1.8	1.5
4	11.6	2.4	2.0
5	14.5	3.0	2.5
6	17.4	3.6	3.0
7	20.3	4.2	3.5
8	23.2	4.8	4.0
9	26.1	5.4	4.5

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	′
	0	9.59 188	30	9.62 785	35	0.37 215	9.96 403	6	60
	1	9.59 218	29	9.62 820	35	0.37 180	9.96 397	5	59
	2	9.59 247	30	9.62 855	35	0.37 145	9.96 392	5	58
	3	9.59 277	30	9.62 890	36	0.37 110	9.96 387	6	57
	4	9.59 307	29	9.62 926	35	0.37 074	9.96 381	5	56
	5	9.59 336	30	9.62 961	35	0.37 039	9.96 376	6	55
	6	9.59 366	30	9.62 996	35	0.37 004	9.96 370	5	54
	7	9.59 396	29	9.63 031	35	0.36 969	9.96 365	5	53
	8	9.59 425	30	9.63 066	35	0.36 934	9.96 360	6	52
	9	9.59 455	29	9.63 101	34	0.36 899	9.96 354	5	51
	10	9.59 484	30	9.63 135	35	0.36 865	9.96 349	6	50
	11	9.59 514	29	9.63 170	35	0.36 830	9.96 343	5	49
	12	9.59 543	30	9.63 205	35	0.36 795	9.96 338	5	48
	13	9.59 573	29	9.63 240	35	0.36 760	9.96 333	6	47
	14	9.59 602	30	9.63 275	35	0.36 725	9.96 327	5	46
	15	9.59 632	29	9.63 310	35	0.36 690	9.96 322	6	45
	16	9.59 661	29	9.63 345	34	0.36 655	9.96 316	5	44
	17	9.59 690	30	9.63 379	35	0.36 621	9.96 311	6	43
	18	9.59 720	29	9.63 414	35	0.36 586	9.96 305	5	42
	19	9.59 749	29	9.63 449	35	0.36 551	9.96 300	6	41
	20	9.59 778	30	9.63 484	35	0.36 516	9.96 294	5	40
	21	9.59 808	29	9.63 519	34	0.36 481	9.96 289	5	39
	22	9.59 838	29	9.63 553	35	0.36 447	9.96 284	6	38
	23	9.59 866	29	9.63 588	35	0.36 412	9.96 278	5	37
	24	9.59 895	29	9.63 623	34	0.36 377	9.96 273	6	36
	25	9.59 924	30	9.63 657	35	0.36 343	9.96 267	5	35
	26	9.59 954	29	9.63 692	34	0.36 308	9.96 262	6	34
	27	9.59 983	29	9.63 726	35	0.36 274	9.96 256	5	33
	28	9.60 012	29	9.63 761	35	0.36 239	9.96 251	6	32
	29	9.60 041	29	9.63 796	34	0.36 204	9.96 245	5	31
	30	9.60 070	29	9.63 830	35	0.36 170	9.96 240	6	30
	31	9.60 099	29	9.63 865	34	0.36 135	9.96 234	5	29
	32	9.60 128	29	9.63 899	35	0.36 101	9.96 229	6	28
	33	9.60 157	29	9.63 934	34	0.36 066	9.96 223	5	27
	34	9.60 186	29	9.63 968	35	0.36 032	9.96 218	6	26
	35	9.60 215	29	9.64 003	34	0.35 997	9.96 212	5	25
	36	9.60 244	29	9.64 037	35	0.35 963	9.96 207	6	24
	37	9.60 273	29	9.64 072	34	0.35 928	9.96 201	5	23
	38	9.60 302	29	9.64 106	34	0.35 894	9.96 196	6	22
	39	9.60 331	28	9.64 140	35	0.35 860	9.96 190	5	21
	40	9.60 359	29	9.64 175	34	0.35 825	9.96 185	6	20
	41	9.60 388	29	9.64 209	34	0.35 791	9.96 179	5	19
	42	9.60 417	29	9.64 243	35	0.35 757	9.96 174	6	18
	43	9.60 446	28	9.64 278	34	0.35 722	9.96 168	6	17
	44	9.60 474	29	9.64 312	34	0.35 688	9.96 162	5	16
	45	9.60 503	29	9.64 346	35	0.35 654	9.96 157	6	15
	46	9.60 532	29	9.64 381	34	0.35 619	9.96 151	5	14
	47	9.60 561	28	9.64 415	34	0.35 585	9.96 146	6	13
	48	9.60 589	29	9.64 449	34	0.35 551	9.96 140	5	12
	49	9.60 618	28	9.64 483	34	0.35 517	9.96 135	6	11
	50	9.60 646	29	9.64 517	35	0.35 483	9.96 129	6	10
	51	9.60 675	29	9.64 552	34	0.35 448	9.96 123	5	9
	52	9.60 704	28	9.64 586	34	0.35 414	9.96 118	6	8
	53	9.60 732	29	9.64 620	34	0.35 380	9.96 112	5	7
	54	9.60 761	28	9.64 654	34	0.35 346	9.96 107	6	6
	55	9.60 789	29	9.64 688	34	0.35 312	9.96 101	6	5
	56	9.60 818	28	9.64 722	34	0.35 278	9.96 095	5	4
	57	9.60 846	29	9.64 756	34	0.35 244	9.96 090	6	3
	58	9.60 875	28	9.64 790	34	0.35 210	9.96 084	5	2
	59	9.60 903	28	9.64 824	34	0.35 176	9.96 079	6	1
	60	9.60 931		9.64 858		0.35 142	9.96 073		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	36	35	34
1	3.6	3.5	3.4
2	7.2	7.0	6.8
3	10.8	10.5	10.2
4	14.4	14.0	13.6
5	18.0	17.5	17.0
6	21.6	21.0	20.4
7	25.2	24.5	23.8
8	28.8	28.0	27.2
9	32.4	31.5	30.6

	30	29	28
1	3.0	2.9	2.8
2	6.0	5.8	5.6
3	9.0	8.7	8.4
4	12.0	11.6	11.2
5	15.0	14.5	14.0
6	18.0	17.4	16.8
7	21.0	20.3	19.6
8	24.0	23.2	22.4
9	27.0	26.1	25.2

	6	5
1	0.6	0.5
2	1.2	1.0
3	1.8	1.5
4	2.4	2.0
5	3.0	2.5
6	3.6	3.0
7	4.2	3.5
8	4.8	4.0
9	5.4	4.5

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.60 931	29	9.64 858	34	0.35 142	9.96 073	6	60	
1	9.60 960	28	9.64 892	34	0.35 108	9.96 067	5	59	
2	9.60 988	28	9.64 926	34	0.35 074	9.96 062	6	58	
3	9.61 016	29	9.64 960	34	0.35 040	9.96 056	6	57	
4	9.61 045	28	9.64 994	34	0.35 006	9.96 050	5	56	
5	9.61 073	28	9.65 028	34	0.34 972	9.96 045	6	55	
6	9.61 101	28	9.65 062	34	0.34 938	9.96 039	5	54	
7	9.61 129	29	9.65 096	34	0.34 904	9.96 034	6	53	
8	9.61 158	28	9.65 130	34	0.34 870	9.96 028	6	52	
9	9.61 186	28	9.65 164	33	0.34 836	9.96 022	5	51	
10	9.61 214	28	9.65 197	34	0.34 803	9.96 017	6	50	
11	9.61 242	28	9.65 231	34	0.34 769	9.96 011	6	49	
12	9.61 270	28	9.65 265	34	0.34 735	9.96 005	5	48	
13	9.61 298	28	9.65 299	34	0.34 701	9.96 000	6	47	
14	9.61 326	28	9.65 333	33	0.34 667	9.95 994	6	46	
15	9.61 354	28	9.65 366	34	0.34 634	9.95 988	6	45	
16	9.61 382	29	9.65 400	34	0.34 600	9.95 982	6	44	
17	9.61 411	27	9.65 434	33	0.34 566	9.95 977	5	43	
18	9.61 438	28	9.65 467	34	0.34 533	9.95 971	6	42	
19	9.61 466	28	9.65 501	34	0.34 499	9.95 965	6	41	
20	9.61 494	28	9.65 535	33	0.34 465	9.95 960	5	40	
21	9.61 522	28	9.65 568	34	0.34 432	9.95 954	6	39	
22	9.61 550	28	9.65 602	34	0.34 398	9.95 948	6	38	
23	9.61 578	28	9.65 636	33	0.34 364	9.95 942	6	37	
24	9.61 606	28	9.65 669	34	0.34 331	9.95 937	5	36	
25	9.61 634	28	9.65 703	33	0.34 297	9.95 931	6	35	
26	9.61 662	27	9.65 736	34	0.34 264	9.95 925	6	34	
27	9.61 689	28	9.65 770	33	0.34 230	9.95 920	5	33	
28	9.61 717	28	9.65 803	34	0.34 197	9.95 914	6	32	
29	9.61 745	28	9.65 837	33	0.34 163	9.95 908	6	31	
30	9.61 773	27	9.65 870	34	0.34 130	9.95 902	6	30	
31	9.61 800	28	9.65 904	33	0.34 096	9.95 897	5	29	
32	9.61 828	28	9.65 937	34	0.34 063	9.95 891	6	28	
33	9.61 856	27	9.65 971	33	0.34 029	9.95 885	6	27	
34	9.61 883	28	9.66 004	34	0.33 996	9.95 879	6	26	
35	9.61 911	28	9.66 038	33	0.33 962	9.95 873	6	25	
36	9.61 939	27	9.66 071	33	0.33 929	9.95 868	5	24	
37	9.61 966	28	9.66 104	34	0.33 896	9.95 862	6	23	
38	9.61 994	27	9.66 138	33	0.33 862	9.95 856	6	22	
39	9.62 021	28	9.66 171	33	0.33 829	9.95 850	6	21	
40	9.62 049	27	9.66 204	34	0.33 796	9.95 844	6	20	
41	9.62 076	28	9.66 238	33	0.33 762	9.95 839	5	19	
42	9.62 104	27	9.66 271	33	0.33 729	9.95 833	6	18	
43	9.62 131	28	9.66 304	33	0.33 696	9.95 827	6	17	
44	9.62 159	27	9.66 337	34	0.33 663	9.95 821	6	16	
45	9.62 186	28	9.66 371	33	0.33 629	9.95 815	6	15	
46	9.62 214	27	9.66 404	33	0.33 596	9.95 810	5	14	
47	9.62 241	27	9.66 437	33	0.33 563	9.95 804	6	13	
48	9.62 268	28	9.66 470	33	0.33 530	9.95 798	6	12	
49	9.62 296	27	9.66 503	34	0.33 497	9.95 792	6	11	
50	9.62 323	27	9.66 537	33	0.33 463	9.95 786	6	10	
51	9.62 350	27	9.66 570	33	0.33 430	9.95 780	6	9	
52	9.62 377	28	9.66 603	33	0.33 397	9.95 775	5	8	
53	9.62 405	27	o.66 636	33	0.33 364	9.95 769	6	7	
54	9.62 432	27	9.66 669	33	0.33 331	9.95 763	6	6	
55	9.62 459	27	9.66 702	33	0.33 298	9.95 757	6	5	
56	9.62 486	27	9.66 735	33	0.33 265	9.95 751	6	4	
57	9.62 513	28	9.66 768	33	0.33 232	9.95 745	6	3	
58	9.62 541	27	9.66 801	33	0.33 199	9.95 739	6	2	
59	9.62 568	27	9.66 834	33	0.33 166	9.95 733	6	1	
60	9.62 595		9.66 867		0.33 133	9.95 728	5	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	34	33
1	3.4	3.3
2	6.8	6.6
3	10.2	9.9
4	13.6	13.2
5	17.0	16.5
6	20.4	19.8
7	23.8	23.1
8	27.2	26.4
9	30.6	29.7

	29	28	27
1	2.9	2.8	2.7
2	5.8	5.6	5.4
3	8.7	8.4	8.1
4	11.6	11.2	10.8
5	14.5	14.0	13.5
6	17.4	16.8	16.2
7	20.3	19.6	18.9
8	23.2	22.4	21.6
9	26.1	25.2	24.3

	6	5
1	0.6	0.5
2	1.2	1.0
3	1.8	1.5
4	2.4	2.0
5	3.0	2.5
6	3.6	3.0
7	4.2	3.5
8	4.8	4.0
9	5.4	4.5

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.62 595	27	9.66 867	33	0.33 133	9.95 728	6	60
	1	9.62 622	27	9.66 900	33	0.33 100	9.95 722	6	59
	2	9.62 649	27	9.66 933	33	0.33 067	9.95 716	6	58
	3	9.62 676	27	9.66 966	33	0.33 034	9.95 710	6	57
	4	9.62 703	27	9.66 999	33	0.33 001	9.95 704	6	56
	5	9.62 730	27	9.67 032	33	0.32 968	9.95 698	6	55
	6	9.62 757	27	9.67 065	33	0.32 935	9.95 692	6	54
	7	9.62 784	27	9.67 098	33	0.32 902	9.95 686	6	53
	8	9.62 811	27	9.67 131	32	0.32 869	9.95 680	6	52
	9	9.62 838	27	9.67 163	33	0.32 837	9.95 674	6	51
	10	9.62 865	27	9.67 196	33	0.32 804	9.95 668	5	50
	11	9.62 892	26	9.67 229	33	0.32 771	9.95 663	6	49
	12	9.62 918	27	9.67 262	33	0.32 738	9.95 657	6	48
	13	9.62 945	27	9.67 295	32	0.32 705	9.95 651	6	47
	14	9.62 972	27	9.67 327	33	0.32 673	9.95 645	6	46
	15	9.62 999	27	9.67 360	33	0.32 640	9.95 639	6	45
	16	9.63 026	26	9.67 393	33	0.32 607	9.95 633	6	44
	17	9.63 052	27	9.67 426	32	0.32 574	9.95 627	6	43
	18	9.63 079	27	9.67 458	33	0.32 542	9.95 621	6	42
	19	9.63 106	27	9.67 491	33	0.32 509	9.95 615	6	41
	20	9.63 133	26	9.67 524	32	0.32 476	9.95 609	6	40
	21	9.63 159	27	9.67 556	33	0.32 444	9.95 603	6	39
	22	9.63 186	27	9.67 589	33	0.32 411	9.95 597	6	38
	23	9.63 213	26	9.67 622	32	0.32 378	9.95 591	6	37
	24	9.63 239	27	9.67 654	33	0.32 346	9.95 585	6	36
	25	9.63 266	26	9.67 687	32	0.32 313	9.95 579	6	35
	26	9.63 292	27	9.67 719	33	0.32 281	9.95 573	6	34
	27	9.63 319	26	9.67 752	33	0.32 248	9.95 567	6	33
	28	9.63 345	27	9.67 785	32	0.32 215	9.95 561	6	32
	29	9.63 372	26	9.67 817	33	0.32 183	9.95 555	6	31
	30	9.63 398	27	9.67 850	32	0.32 150	9.95 549	6	30
	31	9.63 425	26	9.67 882	33	0.32 118	9.95 543	6	29
	32	9.63 451	27	9.67 915	32	0.32 085	9.95 537	6	28
	33	9.63 478	26	9.67 947	33	0.32 053	9.95 531	6	27
	34	9.63 504	27	9.67 980	32	0.32 020	9.95 525	6	26
	35	9.63 531	26	9.68 012	32	0.31 988	9.95 519	6	25
	36	9.63 557	26	9.68 044	33	0.31 956	9.95 513	6	24
	37	9.63 583	27	9.68 077	32	0.31 923	9.95 507	7	23
	38	9.63 610	26	9.68 109	33	0.31 891	9.95 500	6	22
	39	9.63 636	26	9.68 142	32	0.31 858	9.95 494	6	21
	40	9.63 662	27	9.68 174	32	0.31 826	9.95 488	6	20
	41	9.63 689	26	9.68 206	33	0.31 794	9.95 482	6	19
	42	9.63 715	26	9.68 239	32	0.31 761	9.95 476	6	18
	43	9.63 741	26	9.68 271	32	0.31 729	9.95 470	6	17
	44	9.63 767	27	9.68 303	33	0.31 697	9.95 464	6	16
	45	9.63 794	26	9.68 336	32	0.31 664	9.95 458	6	15
	46	9.63 820	26	9.68 368	32	0.31 632	9.95 452	6	14
	47	9.63 846	26	9.68 400	32	0.31 600	9.95 446	6	13
	48	9.63 872	26	9.68 432	33	0.31 568	9.95 440	6	12
	49	9.63 898	26	9.68 465	32	0.31 535	9.95 434	7	11
	50	9.63 924	26	9.68 497	32	0.31 503	9.95 427	6	10
	51	9.63 950	26	9.68 529	32	0.31 471	9.95 421	6	9
	52	9.63 976	26	9.68 561	32	0.31 439	9.95 415	6	8
	53	9.64 002	26	9.68 593	33	0.31 407	9.95 409	6	7
	54	9.64 028	26	9.68 626	32	0.31 374	9.95 403	6	6
	55	9.64 054	26	9.68 658	32	0.31 342	9.95 397	6	5
	56	9.64 080	26	9.68 690	32	0.31 310	9.95 391	7	4
	57	9.64 106	26	9.68 722	32	0.31 278	9.95 384	6	3
	58	9.64 132	26	9.68 754	32	0.31 246	9.95 378	6	2
	59	9.64 158	26	9.68 786	32	0.31 214	9.95 372	6	1
	60	9.64 184		9.68 818		0.31 182	9.95 366		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	33	32
1	3.3	3.2
2	6.6	6.4
3	9.9	9.6
4	13.2	12.8
5	16.5	16.0
6	19.8	19.2
7	23.1	22.4
8	26.4	25.6
9	29.7	28.8

	27	26
1	2.7	2.6
2	5.4	5.2
3	8.1	7.8
4	10.8	10.4
5	13.5	13.0
6	16.2	15.6
7	18.9	18.2
8	21.6	20.8
9	24.3	23.4

	7	6	5
1	0.7	0.6	0.5
2	1.4	1.2	1.0
3	2.1	1.8	1.5
4	2.8	2.4	2.0
5	3.5	3.0	2.5
6	4.2	3.6	3.0
7	4.9	4.2	3.5
8	5.6	4.8	4.0
9	6.3	5.4	4.5

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.64 184	26	9.68 818	32	0.31 182	9.95 366	6	60	
1	9.64 210	26	9.68 850	32	0.31 150	9.95 360	6	59	
2	9.64 236	26	9.68 882	32	0.31 118	9.95 354	6	58	
3	9.64 262	26	9.68 914	32	0.31 086	9.95 348	6	57	
4	9.64 288	25	9.68 946	32	0.31 054	9.95 341	7	56	
5	9.64 313	26	9.68 978	32	0.31 022	9.95 335	6	55	
6	9.64 339	26	9.69 010	32	0.30 990	9.95 329	6	54	
7	9.64 365	26	9.69 042	32	0.30 958	9.95 323	6	53	
8	9.64 391	26	9.69 074	32	0.30 926	9.95 317	6	52	
9	9.64 417	25	9.69 106	32	0.30 894	9.95 310	7	51	
10	9.64 442	26	9.69 138	32	0.30 862	9.95 304	6	50	
11	9.64 468	26	9.69 170	32	0.30 830	9.95 298	6	49	
12	9.64 494	25	9.69 202	32	0.30 798	9.95 292	6	48	
13	9.64 519	26	9.69 234	32	0.30 766	9.95 286	7	47	
14	9.64 545	26	9.69 266	32	0.30 734	9.95 279	6	46	
15	9.64 571	25	9.69 298	31	0.30 702	9.95 273	6	45	
16	9.64 596	26	9.69 329	32	0.30 671	9.95 267	6	44	
17	9.64 622	25	9.69 361	32	0.30 639	9.95 261	7	43	
18	9.64 647	26	9.69 393	32	0.30 607	9.95 254	6	42	
19	9.64 673	25	9.69 425	32	0.30 575	9.95 248	6	41	
20	9.64 698	26	9.69 457	31	0.30 543	9.95 242	6	40	
21	9.64 724	25	9.69 488	32	0.30 512	9.95 236	7	39	
22	9.64 749	26	9.69 520	32	0.30 480	9.95 229	6	38	
23	9.64 775	25	9.69 552	32	0.30 448	9.95 223	6	37	
24	9.64 800	26	9.69 584	31	0.30 416	9.95 217	6	36	
25	9.64 826	25	9.69 615	32	0.30 385	9.95 211	7	35	
26	9.64 851	26	9.69 647	32	0.30 353	9.95 204	6	34	
27	9.64 877	25	9.69 679	31	0.30 321	9.95 198	6	33	
28	9.64 902	25	9.69 710	32	0.30 290	9.95 192	7	32	
29	9.64 927	26	9.69 742	32	0.30 258	9.95 185	6	31	
30	9.64 953	25	9.69 774	31	0.30 226	9.95 179	6	30	
31	9.64 978	25	9.69 805	32	0.30 195	9.95 173	6	29	
32	9.65 003	26	9.69 837	31	0.30 163	9.95 167	7	28	
33	9.65 029	25	9.69 868	32	0.30 132	9.95 160	6	27	
34	9.65 054	25	9.69 900	32	0.30 100	9.95 154	6	26	
35	9.65 079	25	9.69 932	31	0.30 068	9.95 148	7	25	
36	9.65 104	26	9.69 963	32	0.30 037	9.95 141	6	24	
37	9.65 130	25	9.69 995	31	0.30 005	9.95 135	6	23	
38	9.65 155	25	9.70 026	32	0.29 974	9.95 129	7	22	
39	9.65 180	25	9.70 058	31	0.29 942	9.95 122	6	21	
40	9.65 205	25	9.70 089	32	0.29 911	9.95 116	6	20	
41	9.65 230	25	9.70 121	31	0.29 879	9.95 110	7	19	
42	9.65 255	26	9.70 152	32	0.29 848	9.95 103	6	18	
43	9.65 281	25	9.70 184	31	0.29 816	9.95 097	7	17	
44	9.65 306	25	9.70 215	32	0.29 785	9.95 090	6	16	
45	9.65 331	25	9.70 247	31	0.29 753	9.95 084	6	15	
46	9.65 356	25	9.70 278	31	0.29 722	9.95 078	7	14	
47	9.65 381	25	9.70 309	32	0.29 691	9.95 071	6	13	
48	9.65 406	25	9.70 341	31	0.29 659	9.95 065	6	12	
49	9.65 431	25	9.70 372	32	0.29 628	9.95 059	7	11	
50	9.65 456	25	9.70 404	31	0.29 596	9.95 052	6	10	
51	9.65 481	25	9.70 435	31	0.29 565	9.95 046	7	9	
52	9.65 506	25	9.70 466	32	0.29 534	9.95 039	6	8	
53	9.65 531	25	9.70 498	31	0.29 502	9.95 033	6	7	
54	9.65 556	24	9.70 529	31	0.29 471	9.95 027	6	6	
55	9.65 580	25	9.70 560	32	0.29 440	9.95 020	7	5	
56	9.65 605	25	9.70 592	31	0.29 408	9.95 014	6	4	
57	9.65 630	25	9.70 623	31	0.29 377	9.95 007	7	3	
58	9.65 655	25	9.70 654	31	0.29 346	9.95 001	6	2	
59	9.65 680	25	9.70 685	32	0.29 315	9.94 995	6	1	
60	9.65 705		9.70 717		0.29 283	9.94 988	7	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	32	31
1	3.2	3.1
2	6.4	6.2
3	9.6	9.3
4	12.8	12.4
5	16.0	15.5
6	19.2	18.6
7	22.4	21.7
8	25.6	24.8
9	28.8	27.9

	26	25	24
1	2.6	2.5	2.4
2	5.2	5.0	4.8
3	7.8	7.5	7.2
4	10.4	10.0	9.6
5	13.0	12.5	12.0
6	15.6	15.0	14.4
7	18.2	17.5	16.8
8	20.8	20.0	19.2
9	23.4	22.5	21.6

	7	6
1	0.7	0.6
2	1.4	1.2
3	2.1	1.8
4	2.8	2.4
5	3.5	3.0
6	4.2	3.6
7	4.9	4.2
8	5.6	4.8
9	6.3	5.4

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.65 705	24	9.70 717	31	0.29 283	9.94 988	6	60
	1	9.65 729	25	9.70 748	31	0.29 252	9.94 982	7	59
	2	9.65 754	25	9.70 779	31	0.29 221	9.94 975	6	58
	3	9.65 779	25	9.70 810	31	0.29 190	9.94 969	7	57
	4	9.65 804	24	9.70 841	32	0.29 159	9.94 962	6	56
	5	9.65 828	25	9.70 873	31	0.29 127	9.94 956	7	55
	6	9.65 853	25	9.70 904	31	0.29 096	9.94 949	6	54
	7	9.65 878	24	9.70 935	31	0.29 065	9.94 943	7	53
	8	9.65 902	25	9.70 966	31	0.29 034	9.94 936	6	52
32 31 30	9	9.65 927	25	9.70 997	31	0.29 003	9.94 930	7	51
1 3.2 3.1 3.0	10	9.65 952	24	9.71 028	31	0.28 972	9.94 923	6	50
2 6.4 6.2 6.0	11	9.65 976	25	9.71 059	31	0.28 941	9.94 917	6	49
3 9.6 9.3 9.0	12	9.66 001	24	9.71 090	31	0.28 910	9.94 911	7	48
4 12.8 12.4 12.0	13	9.66 025	25	9.71 121	31	0.28 879	9.94 904	6	47
5 16.0 15.5 15.0	14	9.66 050	25	9.71 153	32	0.28 847	9.94 898	7	46
6 19.2 18.6 18.0	15	9.66 075	24	9.71 184	31	0.28 816	9.94 891	6	45
7 22.4 21.7 21.0	16	9.66 099	25	9.71 215	31	0.28 785	9.94 885	7	44
8 25.6 24.8 24.0	17	9.66 124	24	9.71 246	31	0.28 754	9.94 878	7	43
9 28.8 27.9 27.0	18	9.66 148	25	9.71 277	31	0.28 723	9.94 871	6	42
	19	9.66 173	24	9.71 308	31	0.28 692	9.94 865	7	41
	20	9.66 197	24	9.71 339	31	0.28 661	9.94 858	6	40
	21	9.66 221	25	9.71 370	31	0.28 630	9.94 852	7	39
	22	9.66 246	24	9.71 401	30	0.28 599	9.94 845	6	38
	23	9.66 270	25	9.71 431	31	0.28 569	9.94 839	7	37
	24	9.66 295	24	9.71 462	31	0.28 538	9.94 832	6	36
	25	9.66 319	24	9.71 493	31	0.28 507	9.94 826	7	35
	26	9.66 343	25	9.71 524	31	0.28 476	9.94 819	6	34
25 24 23	27	9.66 368	24	9.71 555	31	0.28 445	9.94 813	7	33
1 2.5 2.4 2.3	28	9.66 392	24	9.71 586	31	0.28 414	9.94 806	7	32
2 5.0 4.8 4.6	29	9.66 416	25	9.71 617	31	0.28 383	9.94 799	6	31
3 7.5 7.2 6.9	30	9.66 441	24	9.71 648	31	0.28 352	9.94 793	7	30
4 10.0 9.6 9.2	31	9.66 465	24	9.71 679	30	0.28 321	9.94 786	6	29
5 12.5 12.0 11.5	32	9.66 489	24	9.71 709	31	0.28 291	9.94 780	7	28
6 15.0 14.4 13.8	33	9.66 513	24	9.71 740	31	0.28 260	9.94 773	6	27
7 17.5 16.8 16.1	34	9.66 537	25	9.71 771	31	0.28 229	9.94 767	7	26
8 20.0 19.2 18.4	35	9.66 562	24	9.71 802	31	0.28 198	9.94 760	7	25
9 22.5 21.6 20.7	36	9.66 586	24	9.71 833	30	0.28 167	9.94 753	6	24
	37	9.66 610	24	9.71 863	31	0.28 137	9.94 747	7	23
	38	9.66 634	24	9.71 894	31	0.28 106	9.94 740	7	22
	39	9.66 658	24	9.71 925	30	0.28 075	9.94 734	7	21
	40	9.66 682	24	9.71 955	31	0.28 045	9.94 727	7	20
	41	9.66 706	25	9.71 986	31	0.28 044	9.94 720	6	19
	42	9.66 731	24	9.72 017	31	0.27 983	9.94 714	7	18
	43	9.66 755	24	9.72 048	30	0.27 952	9.94 707	7	17
7 6	44	9.66 779	24	9.72 078	31	0.27 922	9.94 700	6	16
1 0.7 0.6	45	9.66 803	24	9.72 109	31	0.27 891	9.94 694	7	15
2 1.4 1.2	46	9.66 827	24	9.72 140	30	0.27 860	9.94 687	7	14
3 2.1 1.8	47	9.66 851	24	9.72 170	31	0.27 830	9.94 680	6	13
4 2.8 2.4	48	9.66 875	24	9.72 201	30	0.27 799	9.94 674	7	12
5 3.5 3.0	49	9.66 899	23	9.72 231	31	0.27 769	9.94 667	7	11
6 4.2 3.6	50	9.66 922	24	9.72 262	31	0.27 738	9.94 660	6	10
7 4.9 4.2	51	9.66 946	24	9.72 293	30	0.27 707	9.94 654	7	9
8 5.6 4.8	52	9.66 970	24	9.72 323	31	0.27 677	9.94 647	7	8
9 6.3 5.4	53	9.66 994	24	9.72 354	30	0.27 646	9.94 640	6	7
	54	9.67 018	24	9.72 384	31	0.27 616	9.94 634	7	6
	55	9.67 042	24	9.72 415	30	0.27 585	9.94 627	7	5
	56	9.67 066	24	9.72 445	31	0.27 555	9.94 620	6	4
	57	9.67 090	23	9.72 476	30	0.27 524	9.94 614	7	3
	58	9.67 113	24	9.72 506	31	0.27 494	9.94 607	7	2
	59	9.67 137	24	9.72 537	30	0.27 463	9.94 600	7	1
	60	9.67 161		9.72 567		0.27 433	9.94 593		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.67 161	24	9.72 567	31	0.27 433	9.94 593	6	60	
1	9.67 185	23	9.72 598	30	0.27 402	9.94 587	7	59	
2	9.67 208	24	9.72 628	31	0.27 372	9.94 580	7	58	
3	9.67 232	24	9.72 659	30	0.27 341	9.94 573	6	57	
4	9.67 256	24	9.72 689	31	0.27 311	9.94 567	7	56	
5	9.67 280	23	9.72 720	30	0.27 280	9.94 560	7	55	
6	9.67 303	24	9.72 750	30	0.27 250	9.94 553	7	54	
7	9.67 327	23	9.72 780	31	0.27 220	9.94 546	6	53	
8	9.67 350	24	9.72 811	30	0.27 189	9.94 540	7	52	
9	9.67 374	24	9.72 841	31	0.27 159	9.94 533	7	51	
10	9.67 398	23	9.72 872	30	0.27 128	9.94 526	7	50	
11	9.67 421	24	9.72 902	30	0.27 098	9.94 519	6	49	
12	9.67 445	23	9.72 932	31	0.27 068	9.94 513	7	48	
13	9.67 468	24	9.72 963	30	0.27 037	9.94 506	7	47	
14	9.67 492	23	9.72 993	30	0.27 007	9.94 499	7	46	
15	9.67 515	24	9.73 023	31	0.26 977	9.94 492	7	45	
16	9.67 539	23	9.73 054	30	0.26 946	9.94 485	6	44	
17	9.67 562	24	9.73 084	30	0.26 916	9.94 479	7	43	
18	9.67 586	23	9.73 114	30	0.26 886	9.94 472	7	42	
19	9.67 609	24	9.73 144	31	0.26 856	9.94 465	7	41	
20	9.67 633	23	9.73 175	30	0.26 825	9.94 458	7	40	
21	9.67 656	24	9.73 205	30	0.26 795	9.94 451	6	39	
22	9.67 680	23	9.73 235	30	0.26 765	9.94 445	7	38	
23	9.67 703	23	9.73 265	30	0.26 735	9.94 438	7	37	
24	9.67 726	24	9.73 295	31	0.26 705	9.94 431	7	36	
25	9.67 750	23	9.73 326	30	0.26 674	9.94 424	7	35	
26	9.67 773	23	9.73 356	30	0.26 644	9.94 417	7	34	
27	9.67 796	24	9.73 386	30	0.26 614	9.94 410	6	33	
28	9.67 820	23	9.73 416	30	0.26 584	9.94 404	7	32	
29	9.67 843	23	9.73 446	30	0.26 554	9.94 397	7	31	
30	9.67 866	24	9.73 476	31	0.26 524	9.94 390	7	30	
31	9.67 890	23	9.73 507	30	0.26 493	9.94 383	7	29	
32	9.67 913	23	9.73 537	30	0.26 463	9.94 376	7	28	
33	9.67 936	23	9.73 567	30	0.26 433	9.94 369	7	27	
34	9.67 959	23	9.73 597	30	0.26 403	9.94 362	7	26	
35	9.67 982	24	9.73 627	30	0.26 373	9.94 355	6	25	
36	9.68 006	23	9.73 657	30	0.26 343	9.94 349	7	24	
37	9.68 029	23	9.73 687	30	0.26 313	9.94 342	7	23	
38	9.68 052	23	9.73 717	30	0.26 283	9.94 335	7	22	
39	9.68 075	23	9.73 747	30	0.26 253	9.94 328	7	21	
40	9.68 098	23	9.73 777	30	0.26 223	9.94 321	7	20	
41	9.68 121	23	9.73 807	30	0.26 193	9.94 314	7	19	
42	9.68 144	23	9.73 837	30	0.26 163	9.94 307	7	18	
43	9.68 167	23	9.73 867	30	0.26 133	9.94 300	7	17	
44	9.68 190	23	9.73 897	30	0.26 103	9.94 293	7	16	
45	9.68 213	24	9.73 927	30	0.26 073	9.94 286	7	15	
46	9.68 237	23	9.73 957	30	0.26 043	9.94 279	6	14	
47	9.68 260	23	9.73 987	30	0.26 013	9.94 273	7	13	
48	9.68 283	22	9.74 017	30	0.25 983	9.94 266	7	12	
49	9.68 305	23	9.74 047	30	0.25 953	9.94 259	7	11	
50	9.68 328	23	9.74 077	30	0.25 923	9.94 252	7	10	
51	9.68 351	23	9.74 107	30	0.25 893	9.94 245	7	9	
52	9.68 374	23	9.74 137	29	0.25 863	9.94 238	7	8	
53	9.68 397	23	9.74 166	30	0.25 834	9.94 231	7	7	
54	9.68 420	23	9.74 196	30	0.25 804	9.94 224	7	6	
55	9.68 443	23	9.74 226	30	0.25 774	9.94 217	7	5	
56	9.68 466	23	9.74 256	30	0.25 744	9.94 210	7	4	
57	9.68 489	23	9.74 286	30	0.25 714	9.94 203	7	3	
58	9.68 512	22	9.74 316	29	0.25 684	9.94 196	7	2	
59	9.68 534	23	9.74 345	30	0.25 655	9.94 189	7	1	
60	9.68 557		9.74 375		0.25 625	9.94 182		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	31	30	29
1	3.1	3.0	2.9
2	6.2	6.0	5.8
3	9.3	9.0	8.7
4	12.4	12.0	11.6
5	15.5	15.0	14.5
6	18.6	18.0	17.4
7	21.7	21.0	20.3
8	24.8	24.0	23.2
9	27.9	27.0	26.1

	24	23	22
1	2.4	2.3	2.2
2	4.8	4.6	4.4
3	7.2	6.9	6.6
4	9.6	9.2	8.8
5	12.0	11.5	11.0
6	14.4	13.8	13.2
7	16.8	16.1	15.4
8	19.2	18.4	17.6
9	21.6	20.7	19.8

	7	6
1	0.7	0.6
2	1.4	1.2
3	2.1	1.8
4	2.8	2.4
5	3.5	3.0
6	4.2	3.6
7	4.9	4.2
8	5.6	4.8
9	6.3	5.4

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.68 557	23	9.74 375	30	0.25 625	9.94 182	7	60
	1	9.68 580	23	9.74 405	30	0.25 595	9.94 175	7	59
	2	9.68 603	22	9.74 435	30	0.25 565	9.94 168	7	58
	3	9.68 625	23	9.74 465	29	0.25 535	9.94 161	7	57
	4	9.68 648	23	9.74 494	30	0.25 506	9.94 154	7	56
	5	9.68 671	23	9.74 524	30	0.25 476	9.94 147	7	55
	6	9.68 694	22	9.74 554	29	0.25 446	9.94 140	7	54
	7	9.68 716	23	9.74 583	30	0.25 417	9.94 133	7	53
	8	9.68 739	23	9.74 613	30	0.25 387	9.94 126	7	52
	9	9.68 762	22	9.74 643	30	0.25 357	9.94 119	7	51
	10	9.68 784	23	9.74 673	29	0.25 327	9.94 112	7	50
	11	9.68 807	22	9.74 702	30	0.25 298	9.94 105	7	49
	12	9.68 829	23	9.74 732	30	0.25 268	9.94 098	8	48
	13	9.68 852	23	9.74 762	29	0.25 238	9.94 090	7	47
	14	9.68 875	22	9.74 791	30	0.25 209	9.94 083	7	46
	15	9.68 897	23	9.74 821	30	0.25 179	9.94 076	7	45
	16	9.68 920	22	9.74 851	29	0.25 149	9.94 069	7	44
	17	9.68 942	23	9.74 880	30	0.25 120	9.94 062	7	43
	18	9.68 965	22	9.74 910	29	0.25 090	9.94 055	7	42
	19	9.68 987	23	9.74 939	30	0.25 061	9.94 048	7	41
	20	9.69 010	22	9.74 969	29	0.25 031	9.94 041	7	40
	21	9.69 032	23	9.74 998	30	0.25 002	9.94 034	7	39
	22	9.69 055	22	9.75 028	30	0.24 972	9.94 027	7	38
	23	9.69 077	23	9.75 058	29	0.24 942	9.94 020	8	37
	24	9.69 100	22	9.75 087	30	0.24 913	9.94 012	7	36
	25	9.69 122	22	9.75 117	29	0.24 883	9.94 005	7	35
	26	9.69 144	23	9.75 146	30	0.24 854	9.93 998	7	34
	27	9.69 167	22	9.75 176	29	0.24 824	9.93 991	7	33
	28	9.69 189	23	9.75 205	30	0.24 795	9.93 984	7	32
	29	9.69 212	22	9.75 235	29	0.24 765	9.93 977	7	31
	30	9.69 234	22	9.75 264	30	0.24 736	9.93 970	7	30
	31	9.69 256	23	9.75 294	29	0.24 706	9.93 963	8	29
	32	9.69 279	22	9.75 323	30	0.24 677	9.93 955	7	28
	33	9.69 301	22	9.75 353	29	0.24 647	9.93 948	7	27
	34	9.69 323	22	9.75 382	29	0.24 618	9.93 941	7	26
	35	9.69 345	23	9.75 411	30	0.24 589	9.93 934	7	25
	36	9.69 368	22	9.75 441	29	0.24 559	9.93 927	7	24
	37	9.69 390	22	9.75 470	30	0.24 530	9.93 920	8	23
	38	9.69 412	22	9.75 500	29	0.24 500	9.93 912	7	22
	39	9.69 434	22	9.75 529	29	0.24 471	9.93 905	7	21
	40	9.69 456	23	9.75 558	30	0.24 442	9.93 898	7	20
	41	9.69 479	22	9.75 588	29	0.24 412	9.93 891	7	19
	42	9.69 501	22	9.75 617	30	0.24 383	9.93 884	8	18
	43	9.69 523	22	9.75 647	29	0.24 353	9.93 876	7	17
	44	9.69 545	22	9.75 676	29	0.24 324	9.93 869	7	16
	45	9.69 567	22	9.75 705	30	0.24 295	9.93 862	7	15
	46	9.69 589	22	9.75 735	29	0.24 265	9.93 855	8	14
	47	9.69 611	22	9.75 764	29	0.24 236	9.93 847	7	13
	48	9.69 633	22	9.75 793	29	0.24 207	9.93 840	7	12
	49	9.69 655	22	9.75 822	30	0.24 178	9.93 833	7	11
	50	9.69 677	22	9.75 852	29	0.24 148	9.93 826	7	10
	51	9.69 699	22	9.75 881	29	0.24 119	9.93 819	8	9
	52	9.69 721	22	9.75 910	29	0.24 090	9.93 811	7	8
	53	9.69 743	22	9.75 939	30	0.24 061	9.93 804	7	7
	54	9.69 765	22	9.75 969	29	0.24 031	9.93 797	8	6
	55	9.69 787	22	9.75 998	29	0.24 002	9.93 789	7	5
	56	9.69 809	22	9.76 027	29	0.23 973	9.93 782	7	4
	57	9.69 831	22	9.76 056	30	0.23 944	9.93 775	7	3
	58	9.69 853	22	9.76 086	29	0.23 914	9.93 768	8	2
	59	9.69 875	22	9.76 115	29	0.23 885	9.93 760	7	1
	60	9.69 897		9.76 144		0.23 856	9.93 753		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	30	29	23
1	3.0	2.9	2.3
2	6.0	5.8	4.6
3	9.0	8.7	6.9
4	12.0	11.6	9.2
5	15.0	14.5	11.5
6	18.0	17.4	13.8
7	21.0	20.3	16.1
8	24.0	23.2	18.4
9	27.0	26.1	20.7

	22	8	7
1	2.2	0.8	0.7
2	4.4	1.6	1.4
3	6.6	2.4	2.1
4	8.8	3.2	2.8
5	11.0	4.0	3.5
6	13.2	4.8	4.2
7	15.4	5.6	4.9
8	17.6	6.4	5.6
9	19.8	7.2	6.3

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.69 897	22	9.76 144	29	0.23 856	9.93 753	7	60	
1	9.69 919	22	9.76 173	29	0.23 827	9.93 746	8	59	
2	9.69 941	22	9.76 202	29	0.23 798	9.93 738	7	58	
3	9.69 963	21	9.76 231	30	0.23 769	9.93 731	7	57	
4	9.69 984		9.76 261	29	0.23 739	9.93 724	7	56	
5	9.70 006	22	9.76 290	29	0.23 710	9.93 717	8	55	
6	9.70 028	22	9.76 319	29	0.23 681	9.93 709	7	54	
7	9.70 050	22	9.76 348	29	0.23 652	9.93 702	7	53	
8	9.70 072	21	9.76 377	29	0.23 623	9.93 695	8	52	
9	9.70 093	22	9.76 406	29	0.23 594	9.93 687	7	51	
10	9.70 115	22	9.76 435	29	0.23 565	9.93 680	7	50	
11	9.70 137	22	9.76 464	29	0.23 536	9.93 673	8	49	
12	9.70 159	21	9.76 493	29	0.23 507	9.93 665	7	48	
13	9.70 180	22	9.76 522	29	0.23 478	9.93 658	8	47	
14	9.70 202	22	9.76 551	29	0.23 449	9.93 650	7	46	
15	9.70 224	21	9.76 580	29	0.23 420	9.93 643	7	45	
16	9.70 245	22	9.76 609	30	0.23 391	9.93 636	8	44	
17	9.70 267	21	9.76 639	29	0.23 361	9.93 628	7	43	
18	9.70 288	22	9.76 668	29	0.23 332	9.93 621	7	42	
19	9.70 310	22	9.76 697	28	0.23 303	9.93 614	8	41	
20	9.70 332	21	9.76 725	29	0.23 275	9.93 606	7	40	
21	9.70 353	22	9.76 754	29	0.23 246	9.93 599	8	39	
22	9.70 375	21	9.76 783	29	0.23 217	9.93 591	7	38	
23	9.70 396	22	9.76 812	29	0.23 188	9.93 584	7	37	
24	9.70 418	21	9.76 841	29	0.23 159	9.93 577	8	36	
25	9.70 439	22	9.76 870	29	0.23 130	9.93 569	7	35	
26	9.70 461	21	9.76 899	29	0.23 101	9.93 562	8	34	
27	9.70 482	22	9.76 928	29	0.23 072	9.93 554	7	33	
28	9.70 504	21	9.76 957	29	0.23 043	9.93 547	8	32	
29	9.70 525	22	9.76 986	29	0.23 014	9.93 539	7	31	
30	9.70 547	21	9.77 015	29	0.22 985	9.93 532	7	30	
31	9.70 568	22	9.77 044	29	0.22 956	9.93 525	8	29	
32	9.70 590	21	9.77 073	28	0.22 927	9.93 517	7	28	
33	9.70 611	22	9.77 101	29	0.22 899	9.93 510	8	27	
34	9.70 633	21	9.77 130	29	0.22 870	9.93 502	7	26	
35	9.70 654	21	9.77 159	29	0.22 841	9.93 495	8	25	
36	9.70 675	22	9.77 188	29	0.22 812	9.93 487	7	24	
37	9.70 697	21	9.77 217	29	0.22 783	9.93 480	8	23	
38	9.70 718	21	9.77 246	28	0.22 754	9.93 472	7	22	
39	9.70 739	22	9.77 274	29	0.22 726	9.93 465	8	21	
40	9.70 761	21	9.77 303	29	0.22 697	9.93 457	7	20	
41	9.70 782	21	9.77 332	29	0.22 668	9.93 450	8	19	
42	9.70 803	21	9.77 361	29	0.22 639	9.93 442	7	18	
43	9.70 824	22	9.77 390	28	0.22 610	9.93 435	8	17	
44	9.70 846	21	9.77 418	29	0.22 582	9.93 427	7	16	
45	9.70 867	21	9.77 447	29	0.22 553	9.93 420	7	15	
46	9.70 888	21	9.77 476	29	0.22 524	9.93 412	8	14	
47	9.70 909	22	9.77 505	28	0.22 495	9.93 405	7	13	
48	9.70 931	21	9.77 533	29	0.22 467	9.93 397	8	12	
49	9.70 952	21	9.77 562	29	0.22 438	9.93 390	7	11	
50	9.70 973	21	9.77 591	28	0.22 409	9.93 382	8	10	
51	9.70 994	21	9.77 619	29	0.22 381	9.93 375	7	9	
52	9.71 015	21	9.77 648	29	0.22 352	9.93 367	8	8	
53	9.71 036	22	9.77 677	29	0.22 323	9.93 360	7	7	
54	9.71 058	21	9.77 706	28	0.22 294	9.93 352	8	6	
55	9.71 079	21	9.77 734	29	0.22 266	9.93 344	7	5	
56	9.71 100	21	9.77 763	28	0.22 237	9.93 337	8	4	
57	9.71 121	21	9.77 791	29	0.22 209	9.93 329	7	3	
58	9.71 142	21	9.77 820	29	0.22 180	9.93 322	8	2	
59	9.71 163	21	9.77 849	28	0.22 151	9.93 314	7	1	
60	9.71 184		9.77 877		0.22 123	9.93 307		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	30	29	28
1	3.0	2.9	2.8
2	6.0	5.8	5.6
3	9.0	8.7	8.4
4	12.0	11.6	11.2
5	15.0	14.5	14.0
6	18.0	17.4	16.8
7	21.0	20.3	19.6
8	24.0	23.2	22.4
9	27.0	26.1	25.2

	22	21
1	2.2	2.1
2	4.4	4.2
3	6.6	6.3
4	8.8	8.4
5	11.0	10.5
6	13.2	12.6
7	15.4	14.7
8	17.6	16.8
9	19.8	18.9

	8	7
1	0.8	0.7
2	1.6	1.4
3	2.4	2.1
4	3.2	2.8
5	4.0	3.5
6	4.8	4.2
7	5.6	4.9
8	6.4	5.6
9	7.2	6.3

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.71 184	21	9.77 877	29	0.22 123	9.93 307	8	60
	1	9.71 205	21	9.77 906	29	0.22 094	9.93 299	8	59
	2	9.71 226	21	9.77 935	28	0.22 065	9.93 291	7	58
	3	9.71 247	21	9.77 963	29	0.22 037	9.93 284	8	57
	4	9.71 268	21	9.77 992	28	0.22 008	9.93 276	7	56
	5	9.71 289	21	9.78 020	29	0.21 980	9.93 269	8	55
	6	9.71 310	21	9.78 049	28	0.21 951	9.93 261	8	54
	7	9.71 331	21	9.78 077	29	0.21 923	9.93 253	7	53
	8	9.71 352	21	9.78 106	29	0.21 894	9.93 246	8	52
	9	9.71 373	20	9.78 135	28	0.21 865	9.93 238	8	51
	10	9.71 393	21	9.78 163	29	0.21 837	9.93 230	7	50
	11	9.71 414	21	9.78 192	28	0.21 808	9.93 223	8	49
	12	9.71 435	21	9.78 220	29	0.21 780	9.93 215	8	48
	13	9.71 456	21	9.78 249	28	0.21 751	9.93 207	7	47
	14	9.71 477	21	9.78 277	29	0.21 723	9.93 200	8	46
	15	9.71 498	21	9.78 306	28	0.21 694	9.93 192	8	45
	16	9.71 519	20	9.78 334	29	0.21 666	9.93 184	7	44
	17	9.71 539	21	9.78 363	28	0.21 637	9.93 177	8	43
	18	9.71 560	21	9.78 391	28	0.21 609	9.93 169	8	42
	19	9.71 581	21	9.78 419	29	0.21 581	9.93 161	7	41
	20	9.71 602	20	9.78 448	28	0.21 552	9.93 154	8	40
	21	9.71 622	21	9.78 476	29	0.21 524	9.93 146	8	39
	22	9.71 643	21	9.78 505	28	0.21 495	9.93 138	7	38
	23	9.71 664	21	9.78 533	29	0.21 467	9.93 131	8	37
	24	9.71 685	20	9.78 562	28	0.21 438	9.93 123	8	36
	25	9.71 705	21	9.78 590	28	0.21 410	9.93 115	7	35
	26	9.71 726	21	9.78 618	29	0.21 382	9.93 108	8	34
	27	9.71 747	20	9.78 647	28	0.21 353	9.93 100	8	33
	28	9.71 767	21	9.78 675	29	0.21 325	9.93 092	8	32
	29	9.71 788	21	9.78 704	28	0.21 296	9.93 084	7	31
	30	9.71 809	20	9.78 732	28	0.21 268	9.93 077	8	30
	31	9.71 829	21	9.78 760	29	0.21 240	9.93 069	8	29
	32	9.71 850	20	9.78 789	28	0.21 211	9.93 061	8	28
	33	9.71 870	21	9.78 817	28	0.21 183	9.93 053	7	27
	34	9.71 891	20	9.78 845	29	0.21 155	9.93 046	8	26
	35	9.71 911	21	9.78 874	28	0.21 126	9.93 038	8	25
	36	9.71 932	20	9.78 902	28	0.21 098	9.93 030	8	24
	37	9.71 952	21	9.78 930	29	0.21 070	9.93 022	8	23
	38	9.71 973	21	9.78 959	28	0.21 041	9.93 014	7	22
	39	9.71 994	20	9.78 987	28	0.21 013	9.93 007	8	21
	40	9.72 014	20	9.79 015	28	0.20 985	9.92 999	8	20
	41	9.72 034	21	9.79 043	29	0.20 957	9.92 991	8	19
	42	9.72 055	20	9.79 072	28	0.20 928	9.92 983	7	18
	43	9.72 075	21	9.79 100	28	0.20 900	9.92 976	8	17
	44	9.72 096	20	9.79 128	28	0.20 872	9.92 968	8	16
	45	9.72 116	21	9.79 156	29	0.20 844	9.92 960	8	15
	46	9.72 137	20	9.79 185	28	0.20 815	9.92 952	8	14
	47	9.72 157	20	9.79 213	28	0.20 787	9.92 944	8	13
	48	9.72 177	21	9.79 241	28	0.20 759	9.92 936	7	12
	49	9.72 198	20	9.79 269	28	0.20 731	9.92 929	8	11
	50	9.72 218	20	9.79 297	29	0.20 703	9.92 921	8	10
	51	9.72 238	21	9.79 326	28	0.20 674	9.92 913	8	9
	52	9.72 259	20	9.79 354	28	0.20 646	9.92 905	8	8
	53	9.72 279	20	9.79 382	28	0.20 618	9.92 897	8	7
	54	9.72 299	21	9.79 410	28	0.20 590	9.92 889	8	6
	55	9.72 320	20	9.79 438	28	0.20 562	9.92 881	7	5
	56	9.72 340	20	9.79 466	29	0.20 534	9.92 874	8	4
	57	9.72 360	21	9.79 495	28	0.20 505	9.92 866	8	3
	58	9.72 381	20	9.79 523	28	0.20 477	9.92 858	8	2
	59	9.72 401	20	9.79 551	28	0.20 449	9.92 850	8	1
	60	9.72 421		9.79 579		0.20 421	9.92 842		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	29	28
1	2.9	2.8
2	5.8	5.6
3	8.7	8.4
4	11.6	11.2
5	14.5	14.0
6	17.4	16.8
7	20.3	19.6
8	23.2	22.4
9	26.1	25.2

	21	20
1	2.1	2.0
2	4.2	4.0
3	6.3	6.0
4	8.4	8.0
5	10.5	10.0
6	12.6	12.0
7	14.7	14.0
8	16.8	16.0
9	18.9	18.0

	8	7
1	0.8	0.7
2	1.6	1.4
3	2.4	2.1
4	3.2	2.8
5	4.0	3.5
6	4.8	4.2
7	5.6	4.9
8	6.4	5.6
9	7.2	6.3

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.72 421	20	9.79 579	28	0.20 421	9.92 842	8	60	
1	9.72 441	20	9.79 607	28	0.20 393	9.92 834	8	59	
2	9.72 461	21	9.79 635	28	0.20 365	9.92 826	8	58	
3	9.72 482	20	9.79 663	28	0.20 337	9.92 818	8	57	
4	9.72 502	20	9.79 691	28	0.20 309	9.92 810	7	56	
5	9.72 522	20	9.79 719	28	0.20 281	9.92 803	8	55	
6	9.72 542	20	9.79 747	29	0.20 253	9.92 795	8	54	
7	9.72 562	20	9.79 776	28	0.20 224	9.92 787	8	53	
8	9.72 582	20	9.79 804	28	0.20 196	9.92 779	8	52	
9	9.72 602	20	9.79 832	28	0.20 168	9.92 771	8	51	29 28 27
10	9.72 622	21	9.79 860	28	0.20 140	9.92 763	8	50	1 2.9 2.8 2.7
11	9.72 643	20	9.79 888	28	0.20 112	9.92 755	8	49	2 5.8 5.6 5.4
12	9.72 663	20	9.79 916	28	0.20 084	9.92 747	8	48	3 8.7 8.4 8.1
13	9.72 683	20	9.79 944	28	0.20 056	9.92 739	8	47	4 11.6 11.2 10.8
14	9.72 703	20	9.79 972	28	0.20 028	9.92 731	8	46	5 14.5 14.0 13.5
15	9.72 723	20	9.80 000	28	0.20 000	9.92 723	8	45	6 17.4 16.8 16.2
16	9.72 743	20	9.80 028	28	0.19 972	9.92 715	8	44	7 20.3 19.6 18.9
17	9.72 763	20	9.80 056	28	0.19 944	9.92 707	8	43	8 23.2 22.4 21.6
18	9.72 783	20	9.80 084	28	0.19 916	9.92 699	8	42	9 26.1 25.2 24.3
19	9.72 803	20	9.80 112	28	0.19 888	9.92 691	8	41	
20	9.72 823	20	9.80 140	28	0.19 860	9.92 683	8	40	
21	9.72 843	20	9.80 168	27	0.19 832	9.92 675	8	39	
22	9.72 863	20	9.80 195	28	0.19 805	9.92 667	8	38	
23	9.72 883	19	9.80 223	28	0.19 777	9.92 659	8	37	
24	9.72 902	20	9.80 251	28	0.19 749	9.92 651	8	36	
25	9.72 922	20	9.80 279	28	0.19 721	9.92 643	8	35	
26	9.72 942	20	9.80 307	28	0.19 693	9.92 635	8	34	21 20 19
27	9.72 962	20	9.80 335	28	0.19 665	9.92 627	8	33	1 2.1 2.0 1.9
28	9.72 982	20	9.80 363	28	0.19 637	9.92 619	8	32	2 4.2 4.0 3.8
29	9.73 002	20	9.80 391	28	0.19 609	9.92 611	8	31	3 6.3 6.0 5.7
30	9.73 022	19	9.80 419	28	0.19 581	9.92 603	8	30	4 8.4 8.0 7.6
31	9.73 041	20	9.80 447	27	0.19 553	9.92 595	8	29	5 10.5 10.0 9.5
32	9.73 061	20	9.80 474	28	0.19 526	9.92 587	8	28	6 12.6 12.0 11.4
33	9.73 081	20	9.80 502	28	0.19 498	9.92 579	8	27	7 14.7 14.0 13.3
34	9.73 101	20	9.80 530	28	0.19 470	9.92 571	8	26	8 16.8 16.0 15.2
35	9.73 121	19	9.80 558	28	0.19 442	9.92 563	8	25	9 18.9 18.0 17.1
36	9.73 140	20	9.80 586	28	0.19 414	9.92 555	9	24	
37	9.73 160	20	9.80 614	28	0.19 386	9.92 546	8	23	
38	9.73 180	20	9.80 642	27	0.19 358	9.92 538	8	22	
39	9.73 200	19	9.80 669	28	0.19 331	9.92 530	8	21	
40	9.73 219	20	9.80 697	28	0.19 303	9.92 522	8	20	
41	9.73 239	20	9.80 725	28	0.19 275	9.92 514	8	19	
42	9.73 259	19	9.80 753	28	0.19 247	9.92 506	8	18	
43	9.73 278	20	9.80 781	27	0.19 219	9.92 498	8	17	
44	9.73 298	20	9.80 808	28	0.19 192	9.92 490	8	16	9 8 7
45	9.73 318	19	9.80 836	28	0.19 164	9.92 482	9	15	1 0.9 0.8 0.7
46	9.73 337	20	9.80 864	28	0.19 136	9.92 473	8	14	2 1.8 1.6 1.4
47	9.73 357	20	9.80 892	27	0.19 108	9.92 465	8	13	3 2.7 2.4 2.1
48	9.73 377	19	9.80 919	28	0.19 081	9.92 457	8	12	4 3.6 3.2 2.8
49	9.73 396	20	9.80 947	28	0.19 053	9.92 449	8	11	5 4.5 4.0 3.5
50	9.73 416	19	9.80 975	28	0.19 025	9.92 441	8	10	6 5.4 4.8 4.2
51	9.73 435	20	9.81 003	27	0.18 997	9.92 433	9	9	7 6.3 5.6 4.9
52	9.73 455	19	9.81 030	28	0.18 970	9.92 425	8	8	8 7.2 6.4 5.6
53	9.73 474	20	9.81 058	28	0.18 942	9.92 416	9	7	9 8.1 7.2 6.3
54	9.73 494	19	9.81 086	27	0.18 914	9.92 408	8	6	
55	9.73 513	20	9.81 113	28	0.18 887	9.92 400	8	5	
56	9.73 533	19	9.81 141	28	0.18 859	9.92 392	8	4	
57	9.73 552	20	9.81 169	27	0.18 831	9.92 384	8	3	
58	9.73 572	19	9.81 196	28	0.18 804	9.92 376	9	2	
59	9.73 591	20	9.81 224	28	0.18 776	9.92 367	8	1	
60	9.73 611		9.81 252		0.18 748	9.92 359		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.73 611	19	9.81 252	27	0.18 748	9.92 359	8	60
	1	9.73 630	20	9.81 279	28	0.18 721	9.92 351	8	59
	2	9.73 650	19	9.81 307	28	0.18 693	9.92 343	8	58
	3	9.73 669	20	9.81 335	27	0.18 665	9.92 335	9	57
	4	9.73 689	19	9.81 362	28	0.18 638	9.92 326	8	56
	5	9.73 708	19	9.81 390	28	0.18 610	9.92 318	8	55
	6	9.73 727	20	9.81 418	27	0.18 582	9.92 310	8	54
	7	9.73 747	19	9.81 445	28	0.18 555	9.92 302	9	53
	8	9.73 766	19	9.81 473	27	0.18 527	9.92 293	8	52
	9	9.73 785	20	9.81 500	28	0.18 500	9.92 285	8	51
	10	9.73 805	19	9.81 528	28	0.18 472	9.92 277	8	50
	11	9.73 824	19	9.81 556	27	0.18 444	9.92 269	9	49
	12	9.73 843	20	9.81 583	28	0.18 417	9.92 260	8	48
	13	9.73 863	19	9.81 611	27	0.18 389	9.92 252	8	47
	14	9.73 882	19	9.81 638	28	0.18 362	9.92 244	9	46
	15	9.73 901	20	9.81 666	27	0.18 334	9.92 235	8	45
	16	9.73 921	19	9.81 693	28	0.18 307	9.92 227	8	44
	17	9.73 940	19	9.81 721	27	0.18 279	9.92 219	8	43
	18	9.73 959	19	9.81 748	28	0.18 252	9.92 211	9	42
	19	9.73 978	19	9.81 776	27	0.18 224	9.92 202	8	41
	20	9.73 997	20	9.81 803	28	0.18 197	9.92 194	8	40
	21	9.74 017	19	9.81 831	27	0.18 169	9.92 186	9	39
	22	9.74 036	19	9.81 858	28	0.18 142	9.92 177	8	38
	23	9.74 055	19	9.81 886	27	0.18 114	9.92 169	8	37
	24	9.74 074	19	9.81 913	28	0.18 087	9.92 161	9	36
	25	9.74 093	20	9.81 941	27	0.18 059	9.92 152	8	35
	26	9.74 113	19	9.81 968	28	0.18 032	9.92 144	8	34
	27	9.74 132	19	9.81 996	27	0.18 004	9.92 136	9	33
	28	9.74 151	19	9.82 023	28	0.17 977	9.92 127	8	32
	29	9.74 170	19	9.82 051	27	0.17 949	9.92 119	8	31
	30	9.74 189	19	9.82 078	28	0.17 922	9.92 111	9	30
	31	9.74 208	19	9.82 106	27	0.17 894	9.92 102	8	29
	32	9.74 227	19	9.82 133	28	0.17 867	9.92 094	8	28
	33	9.74 246	19	9.82 161	27	0.17 839	9.92 086	9	27
	34	9.74 265	19	9.82 188	27	0.17 812	9.92 077	8	26
	35	9.74 284	19	9.82 215	28	0.17 785	9.92 069	9	25
	36	9.74 303	19	9.82 243	27	0.17 757	9.92 060	8	24
	37	9.74 322	19	9.82 270	28	0.17 730	9.92 052	8	23
	38	9.74 341	19	9.82 298	27	0.17 702	9.92 044	9	22
	39	9.74 360	19	9.82 325	27	0.17 675	9.92 035	8	21
	40	9.74 379	19	9.82 352	28	0.17 648	9.92 027	9	20
	41	9.74 398	19	9.82 380	27	0.17 620	9.92 018	8	19
	42	9.74 417	19	9.82 407	28	0.17 593	9.92 010	8	18
	43	9.74 436	19	9.82 435	27	0.17 565	9.92 002	9	17
	44	9.74 455	19	9.82 462	27	0.17 538	9.91 993	8	16
	45	9.74 474	19	9.82 489	28	0.17 511	9.91 985	9	15
	46	9.74 493	19	9.82 517	27	0.17 483	9.91 976	8	14
	47	9.74 512	19	9.82 544	27	0.17 456	9.91 968	9	13
	48	9.74 531	19	9.82 571	28	0.17 429	9.91 959	8	12
	49	9.74 549	18	9.82 599	27	0.17 401	9.91 951	9	11
	50	9.74 568	19	9.82 626	27	0.17 374	9.91 942	8	10
	51	9.74 587	19	9.82 653	28	0.17 347	9.91 934	9	9
	52	9.74 606	19	9.82 681	27	0.17 319	9.91 925	8	8
	53	9.74 625	19	9.82 708	27	0.17 292	9.91 917	9	7
	54	9.74 644	18	9.82 735	27	0.17 265	9.91 908	8	6
	55	9.74 662	19	9.82 762	28	0.17 238	9.91 900	9	5
	56	9.74 681	19	9 82 790	27	0.17 210	9.91 891	8	4
	57	9.74 700	19	9.82 817	27	0.17 183	9.91 883	9	3
	58	9.74 719	19	9.82 844	27	0.17 156	9.91 874	8	2
	59	9.74 737	18	9.82 871	28	0.17 129	9.91 866	9	1
	60	9.74 756	19	9.82 899		0.17 101	9.91 857		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	28	27
1	2.8	2.7
2	5.6	5.4
3	8.4	8.1
4	11.2	10.8
5	14.0	13.5
6	16.8	16.2
7	19.6	18.9
8	22.4	21.6
9	25.2	24.3

	20	19	18
1	2.0	1.9	1.8
2	4.0	3.8	3.6
3	6.0	5.7	5.4
4	8.0	7.6	7.2
5	10.0	9.5	9.0
6	12.0	11.4	10.8
7	14.0	13.3	12.6
8	16.0	15.2	14.4
9	18.0	17.1	16.2

	9	8
1	0.9	0.8
2	1.8	1.6
3	2.7	2.4
4	3.6	3.2
5	4.5	4.0
6	5.4	4.8
7	6.3	5.6
8	7.2	6.4
9	8.1	7.2

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.74 756	19	9.82 899	27	0.17 101	9.91 857	8	60	
1	9.74 775	19	9.82 926	27	0.17 074	9.91 849	9	59	
2	9.74 794	18	9.82 953	27	0.17 047	9.91 840	8	58	
3	9.74 812	19	9.82 980	28	0.17 020	9.91 832	9	57	
4	9.74 831	19	9.83 008	27	0.16 992	9.91 823	8	56	
5	9.74 850	18	9.83 035	27	0.16 965	9.91 815	9	55	
6	9.74 868	19	9.83 062	27	0.16 938	9.91 806	8	54	
7	9.74 887	19	9.83 089	28	0.16 911	9.91 798	9	53	
8	9.74 906	18	9.83 117	27	0.16 883	9.91 789	8	52	
9	9.74 924	19	9.83 144	27	0.16 856	9.91 781	9	51	
10	9.74 943	18	9.83 171	27	0.16 829	9.91 772	9	50	
11	9.74 961	19	9.83 198	27	0.16 802	9.91 763	8	49	
12	9.74 980	19	9.83 225	27	0.16 775	9.91 755	9	48	
13	9.74 999	18	9.83 252	28	0.16 748	9.91 746	8	47	
14	9.75 017	19	9.83 280	27	0.16 720	9.91 738	9	46	
15	9.75 036	18	9.83 307	27	0.16 693	9.91 729	9	45	
16	9.75 054	19	9.83 334	27	0.16 666	9.91 720	8	44	
17	9.75 073	18	9.83 361	27	0.16 639	9.91 712	9	43	
18	9.75 091	19	9.83 388	27	0.16 612	9.91 703	8	42	
19	9.75 110	18	9.83 415	27	0.16 585	9.91 695	9	41	
20	9.75 128	19	9.83 442	28	0.16 558	9.91 686	9	40	
21	9.75 147	18	9.83 470	27	0.16 530	9.91 677	8	39	
22	9.75 165	19	9.83 497	27	0.16 503	9.91 669	9	38	
23	9.75 184	18	9.83 524	27	0.16 476	9.91 660	9	37	
24	9.75 202	19	9.83 551	27	0.16 449	9.91 651	8	36	
25	9.75 221	18	9.83 578	27	0.16 422	9.91 643	9	35	
26	9.75 239	19	9.83 605	27	0.16 395	9.91 634	9	34	
27	9.75 258	18	9.83 632	27	0.16 368	9.91 625	8	33	
28	9.75 276	18	9.83 659	27	0.16 341	9.91 617	9	32	
29	9.75 294	19	9.83 686	27	0.16 314	9.91 608	9	31	
30	9.75 313	18	9.83 713	27	0.16 287	9.91 599	8	30	
31	9.75 331	19	9.83 740	28	0.16 260	9.91 591	9	29	
32	9.75 350	18	9.83 768	27	0.16 232	9.91 582	9	28	
33	9.75 368	18	9.83 795	27	0.16 205	9.91 573	8	27	
34	9.75 386	19	9.83 822	27	0.16 178	9.91 565	9	26	
35	9.75 405	18	9.83 849	27	0.16 151	9.91 556	9	25	
36	9.75 423	18	9.83 876	27	0.16 124	9.91 547	9	24	
37	9.75 441	18	9.83 903	27	0.16 097	9.91 538	8	23	
38	9.75 459	19	9.83 930	27	0.16 070	9.91 530	9	22	
39	9.75 478	18	9.83 957	27	0.16 043	9.91 521	9	21	
40	9.75 496	18	9.83 984	27	0.16 016	9.91 512	8	20	
41	9.75 514	19	9.84 011	27	0.15 989	9.91 504	9	19	
42	9.75 533	18	9.84 038	27	0.15 962	9.91 495	9	18	
43	9.75 551	18	9.84 065	27	0.15 935	9.91 486	9	17	
44	9.75 569	18	9.84 092	27	0.15 908	9.91 477	8	16	
45	9.75 587	18	9.84 119	27	0.15 881	9.91 469	9	15	
46	9.75 605	19	9.84 146	27	0.15 854	9.91 460	9	14	
47	9.75 624	18	9.84 173	27	0.15 827	9.91 451	9	13	
48	9.75 642	18	9.84 200	27	0.15 800	9.91 442	9	12	
49	9.75 660	18	9.84 227	27	0.15 773	9.91 433	8	11	
50	9.75 678	18	9.84 254	26	0.15 746	9.91 425	9	10	
51	9.75 696	18	9.84 280	27	0.15 720	9.91 416	9	9	
52	9.75 714	19	9.84 307	27	0.15 693	9.91 407	9	8	
53	9.75 733	18	9.84 334	27	0.15 666	9.91 398	9	7	
54	9.75 751	18	9.84 361	27	0.15 639	9.91 389	8	6	
55	9.75 769	18	9.84 388	27	0.15 612	9.91 381	9	5	
56	9.75 787	18	9.84 415	27	0.15 585	9.91 372	9	4	
57	9.75 805	18	9.84 442	27	0.15 558	9.91 363	9	3	
58	9.75 823	18	9.84 469	27	0.15 531	9.91 354	9	2	
59	9.75 841	18	9.84 496	27	0.15 504	9.91 345	9	1	
60	9.75 859		9.84 523		0.15 477	9.91 336		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	28	27	26
1	2.8	2.7	2.6
2	5.6	5.4	5.2
3	8.4	8.1	7.8
4	11.2	10.8	10.4
5	14.0	13.5	13.0
6	16.8	16.2	15.6
7	19.6	18.9	18.2
8	22.4	21.6	20.8
9	25.2	24.3	23.4

	19	18
1	1.9	1.8
2	3.8	3.6
3	5.7	5.4
4	7.6	7.2
5	9.5	9.0
6	11.4	10.8
7	13.3	12.6
8	15.2	14.4
9	17.1	16.2

	9	8
1	0.9	0.8
2	1.8	1.6
3	2.7	2.4
4	3.6	3.2
5	4.5	4.0
6	5.4	4.8
7	6.3	5.6
8	7.2	6.4
9	8.1	7.2

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.75 859	18	9.84 523	27	0.15 477	9.91 336	8	60
	1	9.75 877	18	9.84 550	26	0.15 450	9.91 328	9	59
	2	9.75 895	18	9.84 576	27	0.15 424	9.91 319	9	58
	3	9.75 913	18	9.84 603	27	0.15 397	9.91 310	9	57
	4	9.75 931	18	9.84 630	27	0.15 370	9.91 301	9	56
	5	9.75 949	18	9.84 657	27	0.15 343	9.91 292	9	55
	6	9.75 967	18	9.84 684	27	0.15 316	9.91 283	9	54
	7	9.75 985	18	9.84 711	27	0.15 289	9.91 274	8	53
	8	9.76 003	18	9.84 738	26	0.15 262	9.91 266	9	52
	9	9.76 021	18	9.84 764	27	0.15 236	9.91 257	9	51
	10	9.76 039	18	9.84 791	27	0.15 209	9.91 248	9	50
	11	9.76 057	18	9.84 818	27	0.15 182	9.91 239	9	49
	12	9.76 075	18	9.84 845	27	0.15 155	9.91 230	9	48
	13	9.76 093	18	9.84 872	27	0.15 128	9.91 221	9	47
	14	9.76 111	18	9.84 899	26	0.15 101	9.91 212	9	46
	15	9.76 129	18	9.84 925	27	0.15 075	9.91 203	9	45
	16	9.76 146	18	9.84 952	27	0.15 048	9.91 194	9	44
	17	9.76 164	18	9.84 979	27	0.15 021	9.91 185	9	43
	18	9.76 182	18	9.85 006	27	0.14 994	9.91 176	9	42
	19	9.76 200	18	9.85 033	26	0.14 967	9.91 167	9	41
	20	9.76 218	18	9.85 059	27	0.14 941	9.91 158	9	40
	21	9.76 236	17	9.85 086	27	0.14 914	9.91 149	9	39
	22	9.76 253	18	9.85 113	27	0.14 887	9.91 141	8	38
	23	9.76 271	18	9.85 140	26	0.14 860	9.91 132	9	37
	24	9.76 289	18	9.85 166	27	0.14 834	9.91 123	9	36
	25	9.76 307	17	9.85 193	27	0.14 807	9.91 114	9	35
	26	9.76 324	18	9.85 220	27	0.14 780	9.91 105	9	34
	27	9.76 342	18	9.85 247	26	0.14 753	9.91 096	9	33
	28	9.76 360	18	9.85 273	27	0.14 727	9.91 087	9	32
	29	9.76 378	17	9.85 300	27	0.14 700	9.91 078	9	31
	30	9.76 395	18	9.85 327	27	0.14 673	9.91 069	9	30
	31	9.76 413	18	9.85 354	26	0.14 646	9.91 060	9	29
	32	9.76 431	17	9.85 380	27	0.14 620	9.91 051	9	28
	33	9.76 448	18	9.85 407	27	0.14 593	9.91 042	9	27
	34	9.76 466	18	9.85 434	26	0.14 566	9.91 033	10	26
	35	9.76 484	17	9.85 460	27	0.14 540	9.91 023	9	25
	36	9.76 501	18	9.85 487	27	0.14 513	9.91 014	9	24
	37	9.76 519	18	9.85 514	26	0.14 486	9.91 005	9	23
	38	9.76 537	17	9.85 540	27	0.14 460	9.90 996	9	22
	39	9.76 554	18	9.85 567	27	0.14 433	9.90 987	9	21
	40	9.76 572	18	9.85 594	26	0.14 406	9.90 978	9	20
	41	9.76 590	18	9.85 620	27	0.14 380	9.90 969	9	19
	42	9.76 607	17	9.85 647	27	0.14 353	9.90 960	9	18
	43	9.76 625	18	9.85 674	26	0.14 326	9.90 951	9	17
	44	9.76 642	17	9.85 700	27	0.14 300	9.90 942	9	16
	45	9.76 660	18	9.85 727	27	0.14 273	9.90 933	9	15
	46	9.76 677	17	9.85 754	26	0.14 246	9.90 924	9	14
	47	9.76 695	18	9.85 780	27	0.14 220	9.90 915	9	13
	48	9.76 712	17	9.85 807	27	0.14 193	9.90 906	9	12
	49	9.76 730	18	9.85 834	26	0.14 166	9.90 896	10	11
	50	9.76 747	17	9.85 860	27	0.14 140	9.90 887	9	10
	51	9.76 765	18	9.85 887	26	0.14 113	9.90 878	9	9
	52	9.76 782	17	9.85 913	27	0.14 087	9.90 869	9	8
	53	9.76 800	18	9.85 940	27	0.14 060	9.90 860	9	7
	54	9.76 817	17	9.85 967	26	0.14 033	9.90 851	9	6
	55	9.76 835	18	9.85 993	27	0.14 007	9.90 842	9	5
	56	9.76 852	17	9.86 020	27	0.13 980	9.90 832	10	4
	57	9.76 870	18	9.86 046	26	0.13 954	9.90 823	9	3
	58	9.76 887	17	9.86 073	27	0.13 927	9.90 814	9	2
	59	9.76 904	17	9.86 100	27	0.13 900	9.90 805	9	1
	60	9.76 922	18	9.86 126	26	0.13 874	9.90 796	9	0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	27	26
1	2.7	2.6
2	5.4	5.2
3	8.1	7.8
4	10.8	10.4
5	13.5	13.0
6	16.2	15.6
7	18.9	18.2
8	21.6	20.8
9	24.3	23.4

	18	17
1	1.8	1.7
2	3.6	3.4
3	5.4	5.1
4	7.2	6.8
5	9.0	8.5
6	10.8	10.2
7	12.6	11.9
8	14.4	13.6
9	16.2	15.3

	10	9	8
1	1.0	0.9	0.8
2	2.0	1.8	1.6
3	3.0	2.7	2.4
4	4.0	3.6	3.2
5	5.0	4.5	4.0
6	6.0	5.4	4.8
7	7.0	6.3	5.6
8	8.0	7.2	6.4
9	9.0	8.1	7.2

′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
0	9.76 922	17	9.86 126	27	0.13 874	9.90 796	9	60
1	9.76 939	18	9.86 153	26	0.13 847	9.90 787	10	59
2	9.76 957	17	9.86 179	27	0.13 821	9.90 777	9	58
3	9.76 974	17	9.86 206	26	0.13 794	9.90 768	9	57
4	9.76 991		9.86 232		0.13 768	9.90 759		56
5	9.77 009	18	9.86 259	27	0.13 741	9.90 750	9	55
6	9.77 026	17	9.86 285	26	0.13 715	9.90 741	9	54
7	9.77 043	17	9.86 312	27	0.13 688	9.90 731	10	53
8	9.77 061	18	9.86 338	26	0.13 662	9.90 722	9	52
9	9.77 078	17	9.86 365	27	0.13 635	9.90 713	9	51
10	9.77 095	17	9.86 392	27	0.13 608	9.90 704	9	50
11	9.77 112		9.86 418	26	0.13 582	9.90 694	10	49
12	9.77 130	18	9.86 445	27	0.13 555	9.90 685	9	48
13	9.77 147	17	9.86 471	26	0.13 529	9.90 676	9	47
14	9.77 164	17	9.86 498	27	0.13 502	9.90 667	9	46
15	9.77 181	17	9.86 524	26	0.13 476	9.90 657	10	45
16	9.77 199	18	9.86 551	27	0.13 449	9.90 648	9	44
17	9.77 216	17	9.86 577	26	0.13 423	9.90 639	9	43
18	9.77 233	17	9.86 603	27	0.13 397	9.90 630	9	42
19	9.77 250	18	9.86 630	26	0.13 370	9.90 620	10	41
20	9.77 268	17	9.86 656	27	0.13 344	9.90 611	9	40
21	9.77 285		9.86 683	26	0.13 317	9.90 602	9	39
22	9.77 302	17	9.86 709	27	0.13 291	9.90 592	10	38
23	9.77 319	17	9.86 736	26	0.13 264	9.90 583	9	37
24	9.77 336	17	9.86 762	27	0.13 238	9.90 574	9	36
25	9.77 353	17	9.86 789	26	0.13 211	9.90 565	9	35
26	9.77 370	17	9.86 815	27	0.13 185	9.90 555	10	34
27	9.77 387		9.86 842	26	0.13 158	9.90 546	9	33
28	9.77 405	18	9.86 868	26	0.13 132	9.90 537	9	32
29	9.77 422	17	9.86 894	27	0.13 106	9.90 527	10	31
30	9.77 439	17	9.86 921	26	0.13 079	9.90 518	9	30
31	9.77 456		9.86 947	27	0.13 053	9.90 509	9	29
32	9.77 473	17	9.86 974	26	0.13 026	9.90 499	10	28
33	9.77 490	17	9.87 000	27	0.13 000	9.90 490	9	27
34	9.77 507	17	9.87 027	26	0.12 973	9.90 480	10	26
35	9.77 524	17	9.87 053	26	0.12 947	9.90 471	9	25
36	9.77 541	17	9.87 079	27	0.12 921	9.90 462	9	24
37	9.77 558	17	9.87 106	26	0.12 894	9.90 452	10	23
38	9.77 575	17	9.87 132	26	0.12 868	9.90 443	9	22
39	9.77 592	17	9.87 158	27	0.12 842	9.90 434	9	21
40	9.77 609	17	9.87 185	26	0.12 815	9.90 424	10	20
41	9.77 626	17	9.87 211	27	0.12 789	9.90 415	9	19
42	9.77 643	17	9.87 238	26	0.12 762	9.90 405	10	18
43	9.77 660	17	9.87 264	26	0.12 736	9.90 396	9	17
44	9.77 677	17	9.87 290	27	0.12 710	9.90 386	10	16
45	9.77 694	17	9.87 317	26	0.12 683	9.90 377	9	15
46	9.77 711	17	9.87 343	26	0.12 657	9.90 368	9	14
47	9.77 728	16	9.87 369	27	0.12 631	9.90 358	10	13
48	9.77 744	17	9.87 396	26	0.12 604	9.90 349	9	12
49	9.77 761	17	9.87 422	26	0.12 578	9.90 339	10	11
50	9.77 778	17	9.87 448	27	0.12 552	9.90 330	9	10
51	9.77 795	17	9.87 475	26	0.12 525	9.90 320	10	9
52	9.77 812	17	9.87 501	26	0.12 499	9.90 311	9	8
53	9.77 829	17	9.87 527	27	0.12 473	9.90 301	10	7
54	9.77 846	16	9.87 554	26	0.12 446	9.90 292	9	6
55	9.77 862	17	9.87 580	26	0.12 420	9.90 282	10	5
56	9.77 879	17	9.87 606	27	0.12 394	9.90 273	9	4
57	9.77 896	17	9.87 633	26	0.12 367	9.90 263	10	3
58	9.77 913	17	9.87 659	26	0.12 341	9.90 254	9	2
59	9.77 930	16	9.87 685	26	0.12 315	9.90 244	10	1
60	9.77 946		9.87 711		0.12 289	9.90 235	9	0
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′

Proportional Parts

	27	26
1	2.7	2.6
2	5.4	5.2
3	8.1	7.8
4	10.8	10.4
5	13.5	13.0
6	16.2	15.6
7	18.9	18.2
8	21.6	20.8
9	24.3	23.4

	18	17	16
1	1.8	1.7	1.6
2	3.6	3.4	3.2
3	5.4	5.1	4.8
4	7.2	6.8	6.4
5	9.0	8.5	8.0
6	10.8	10.2	9.6
7	12.6	11.9	11.2
8	14.4	13.6	12.8
9	16.2	15.3	14.4

	10	9
1	1.0	0.9
2	2.0	1.8
3	3.0	2.7
4	4.0	3.6
5	5.0	4.5
6	6.0	5.4
7	7.0	6.3
8	8.0	7.2
9	9.0	8.1

Proportional Parts

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.77 946	17	9.87 711	27	0.12 289	9.90 235	10	60
	1	9.77 963	17	9.87 738	26	0.12 262	9.90 225	9	59
	2	9.77 980	17	9.87 764	26	0.12 236	9.90 216	10	58
	3	9.77 997	16	9.87 790	27	0.12 210	9.90 206	9	57
	4	9.78 013	17	9.87 817	26	0.12 183	9.90 197	10	56
	5	9.78 030	17	9.87 843	26	0.12 157	9.90 187	9	55
	6	9.78 047	16	9.87 869	26	0.12 131	9.90 178	10	54
	7	9.78 063	17	9.87 895	27	0.12 105	9.90 168	9	53
	8	9.78 080	17	9.87 922	26	0.12 078	9.90 159	10	52
	9	9.78 097	16	9.87 948	26	0.12 052	9.90 149	10	51
	10	9.78 113	17	9.87 974	26	0.12 026	9.90 139	9	50
	11	9.78 130	17	9.88 000	27	0.12 000	9.90 130	10	49
	12	9.78 147	16	9.88 027	26	0.11 973	9.90 120	9	48
	13	9.78 163	17	9.88 053	26	0.11 947	9.90 111	10	47
	14	9.78 180	17	9.88 079	26	0.11 921	9.90 101	10	46
	15	9.78 197	16	9.88 105	26	0.11 895	9.90 091	9	45
	16	9.78 213	17	9.88 131	27	0.11 869	9.90 082	10	44
	17	9.78 230	16	9.88 158	26	0.11 842	9.90 072	9	43
	18	9.78 246	17	9.88 184	26	0.11 816	9.90 063	10	42
	19	9.78 263	17	9.88 210	26	0.11 790	9.90 053	10	41
	20	9.78 280	16	9.88 236	26	0.11 764	9.90 043	9	40
	21	9.78 296	17	9.88 262	27	0.11 738	9.90 034	10	39
	22	9.78 313	16	9.88 289	26	0.11 711	9.90 024	10	38
	23	9.78 329	17	9.88 315	26	0.11 685	9.90 014	9	37
	24	9.78 346	16	9.88 341	26	0.11 659	9.90 005	10	36
	25	9.78 362	17	9.88 367	26	0.11 633	9.89 995	10	35
	26	9.78 379	16	9.88 393	27	0.11 607	9.89 985	9	34
	27	9.78 395	17	9.88 420	26	0.11 580	9.89 976	10	33
	28	9.78 412	16	9.88 446	26	0.11 554	9.89 966	10	32
	29	9.78 428	17	9.88 472	26	0.11 528	9.89 956	9	31
	30	9.78 445	16	9.88 498	26	0.11 502	9.89 947	10	30
	31	9.78 461	17	9.88 524	26	0.11 476	9.89 937	10	29
	32	9.78 478	16	9.88 550	27	0.11 450	9.89 927	9	28
	33	9.78 494	16	9.88 577	26	0.11 423	9.89 918	10	27
	34	9.78 510	17	9.88 603	26	0.11 397	9.89 908	10	26
	35	9.78 527	16	9.88 629	26	0.11 371	9.89 898	10	25
	36	9.78 543	17	9.88 655	26	0.11 345	9.89 888	9	24
	37	9.78 560	16	9.88 681	26	0.11 319	9.89 879	10	23
	38	9.78 576	16	9.88 707	26	0.11 293	9.89 869	10	22
	39	9.78 592	17	9.88 733	26	0.11 267	9.89 859	10	21
	40	9.78 609	16	9.88 759	27	0.11 241	9.89 849	9	20
	41	9.78 625	17	9.88 786	26	0.11 214	9.89 840	10	19
	42	9.78 642	16	9.88 812	26	0.11 188	9.89 830	10	18
	43	9.78 658	16	9.88 838	26	0.11 162	9.89 820	10	17
	44	9.78 674	17	9.88 864	26	0.11 136	9.89 810	9	16
	45	9.78 691	16	9.88 890	26	0.11 110	9.89 801	10	15
	46	9.78 707	16	9.88 916	26	0.11 084	9.89 791	10	14
	47	9.78 723	16	9.88 942	26	0.11 058	9.89 781	10	13
	48	9.78 739	17	9.88 968	26	0.11 032	9.89 771	10	12
	49	9.78 756	16	9.88 994	26	0.11 006	9.89 761	9	11
	50	9.78 772	16	9.89 020	26	0.10 980	9.89 752	10	10
	51	9.78 788	17	9.89 046	27	0.10 954	9.89 742	10	9
	52	9.78 805	16	9.89 073	26	0.10 927	9.89 732	10	8
	53	9.78 821	16	9.89 099	26	0.10 901	9.89 722	10	7
	54	9.78 837	16	9.89 125	26	0.10 875	9.89 712	10	6
	55	9.78 853	16	9.89 151	26	0.10 849	9.89 702	9	5
	56	9.78 869	17	9.89 177	26	0.10 823	9.89 693	10	4
	57	9.78 886	16	9.89 203	26	0.10 797	9.89 683	10	3
	58	9.78 902	16	9.89 229	26	0.10 771	9.89 673	10	2
	59	9.78 918	16	9.89 255	26	0.10 745	9.89 663	10	1
	60	9.78 934		9.89 281		0.10 719	9.89 653		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	27	26
1	2.7	2.6
2	5.4	5.2
3	8.1	7.8
4	10.8	10.4
5	13.5	13.0
6	16.2	15.6
7	18.9	18.2
8	21.6	20.8
9	24.3	23.4

	17	16
1	1.7	1.6
2	3.4	3.2
3	5.1	4.8
4	6.8	6.4
5	8.5	8.0
6	10.2	9.6
7	11.9	11.2
8	13.6	12.8
9	15.3	14.4

	10	9
1	1.0	0.9
2	2.0	1.8
3	3.0	2.7
4	4.0	3.6
5	5.0	4.5
6	6.0	5.4
7	7.0	6.3
8	8.0	7.2
9	9.0	8.1

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.78 934	16	9.89 281	26	0.10 719	9.89 653	10	60	
1	9.78 950	17	9.89 307	26	0.10 693	9.89 643	10	59	
2	9.78 967	16	9.89 333	26	0.10 667	9.89 633	9	58	
3	9.78 983	16	9.89 359	26	0.10 641	9.89 624	10	57	
4	9.78 999	16	9.89 385	26	0.10 615	9.89 614	10	56	
5	9.79 015	16	9.89 411	26	0.10 589	9.89 604	10	55	
6	9.79 031	16	9.89 437	26	0.10 563	9.89 594	10	54	
7	9.79 047	16	9.89 463	26	0.10 537	9.89 584	10	53	
8	9.79 063	16	9.89 489	26	0.10 511	9.89 574	10	52	
9	9.79 079	16	9.89 515	26	0.10 485	9.89 564	10	51	
10	9.79 095	16	9.89 541	26	0.10 459	9.89 554	10	50	
11	9.79 111	17	9.89 567	26	0.10 433	9.89 544	10	49	
12	9.79 128	16	9.89 593	26	0.10 407	9.89 534	10	48	
13	9.79 144	16	9.89 619	26	0.10 381	9.89 524	10	47	
14	9.79 160	16	9.89 645	26	0.10 355	9.89 514	10	46	
15	9.79 176	16	9.89 671	26	0.10 329	9.89 504	10	45	
16	9.79 192	16	9.89 697	26	0.10 303	9.89 495	9	44	
17	9.79 208	16	9.89 723	26	0.10 277	9.89 485	10	43	
18	9.79 224	16	9.89 749	26	0.10 251	9.89 475	10	42	
19	9.79 240	16	9.89 775	26	0.10 225	9.89 465	10	41	
20	9.79 256	16	9.89 801	26	0.10 199	9.89 455	10	40	
21	9.79 272	16	9.89 827	26	0.10 173	9.89 445	10	39	
22	9.79 288	16	9.89 853	26	0.10 147	9.89 435	10	38	
23	9.79 304	15	9.89 879	26	0.10 121	9.89 425	10	37	
24	9.79 319	16	9.89 905	26	0.10 095	9.89 415	10	36	
25	9.79 335	16	9.89 931	26	0.10 069	9.89 405	10	35	
26	9.79 351	16	9.89 957	26	0.10 043	9.89 395	10	34	
27	9.79 367	16	9.89 983	26	0.10 017	9.89 385	10	33	
28	9.79 383	16	9.90 009	26	0.09 991	9.89 375	11	32	
29	9.79 399	16	9.90 035	26	0.09 965	9.89 364	10	31	
30	9.79 415	16	9.90 061	25	0.09 939	9.89 354	10	30	
31	9.79 431	16	9.90 086	26	0.09 914	9.89 344	10	29	
32	9.79 447	16	9.90 112	26	0.09 888	9.89 334	10	28	
33	9.79 463	15	9.90 138	26	0.09 862	9.89 324	10	27	
34	9.79 478	16	9.90 164	26	0.09 836	9.89 314	10	26	
35	9.79 494	16	9.90 190	26	0.09 810	9.89 304	10	25	
36	9.79 510	16	9.90 216	26	0.09 784	9.89 294	10	24	
37	9.79 526	16	9.90 242	26	0.09 758	9.89 284	10	23	
38	9.79 542	16	9.90 268	26	0.09 732	9.89 274	10	22	
39	9.79 558	15	9.90 294	26	0.09 706	9.89 264	10	21	
40	9.79 573	16	9.90 320	26	0.09 680	9.89 254	10	20	
41	9.79 589	16	9.90 346	25	0.09 654	9.89 244	11	19	
42	9.79 605	16	9.90 371	26	0.09 629	9.89 233	10	18	
43	9.79 621	15	9.90 397	26	0.09 603	9.89 223	10	17	
44	9.79 636	16	9.90 423	26	0.09 577	9.89 213	10	16	
45	9.79 652	16	9.90 449	26	0.09 551	9.89 203	10	15	
46	9.79 668	16	9.90 475	26	0.09 525	9.89 193	10	14	
47	9.79 684	15	9.90 501	26	0.09 499	9.89 183	10	13	
48	9.79 699	16	9.90 527	26	0.09 473	9.89 173	11	12	
49	9.79 715	16	9.90 553	25	0.09 447	9.89 162	10	11	
50	9.79 731	15	9.90 578	26	0.09 422	9.89 152	10	10	
51	9.79 746	16	9.90 604	26	0.09 396	9.89 142	10	9	
52	9.79 762	16	9.90 630	26	0.09 370	9.89 132	10	8	
53	9.79 778	15	9.90 656	26	0.09 344	9.89 122	10	7	
54	9.79 793	16	9.90 682	26	0.09 318	9.89 112	11	6	
55	9.79 809	16	9.90 708	26	0.09 292	9.89 101	10	5	
56	9.79 825	15	9.90 734	25	0.09 266	9.89 091	10	4	
57	9.79 840	16	9.90 759	26	0.09 241	9.89 081	10	3	
58	9.79 856	16	9.90 785	26	0.09 215	9.89 071	11	2	
59	9.79 872	15	9.90 811	26	0.09 189	9.89 060	10	1	
60	9.79 887		9.90 837		0.09 163	9.89 050		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	17	16	15
1	1.7	1.6	1.5
2	3.4	3.2	3.0
3	5.1	4.8	4.5
4	6.8	6.4	6.0
5	8.5	8.0	7.5
6	10.2	9.6	9.0
7	11.9	11.2	10.5
8	13.6	12.8	12.0
9	15.3	14.4	13.5

	11	10	9
1	1.1	1.0	0.9
2	2.2	2.0	1.8
3	3.3	3.0	2.7
4	4.4	4.0	3.6
5	5.5	5.0	4.5
6	6.6	6.0	5.4
7	7.7	7.0	6.3
8	8.8	8.0	7.2
9	9.9	9.0	8.1

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.79 887	16	9.90 837	26	0.09 163	9.89 050	10	60
	1	9.79 903	15	9.90 863	26	0.09 137	9.89 040	10	59
	2	9.79 918	16	9.90 889	25	0.09 111	9.89 030	10	58
	3	9.79 934	16	9.90 914	26	0.09 086	9.89 020	11	57
	4	9.79 950	15	9.90 940	26	0.09 060	9.89 009	10	56
	5	9.79 965	16	9.90 966	26	0.09 034	9.88 999	10	55
	6	9.79 981	15	9.90 992	26	0.09 008	9.88 989	11	54
	7	9.79 996	16	9.91 018	25	0.08 982	9.88 978	10	53
	8	9.80 012	15	9.91 043	26	0.08 957	9.88 968	10	52
26 25	9	9.80 027	16	9.91 069	26	0.08 931	9.88 958	10	51
1 2.6 2.5	10	9.80 043	15	9.91 095	26	0.08 905	9.88 948	11	50
2 5.2 5.0	11	9.80 058	16	9.91 121	26	0.08 879	9.88 937	10	49
3 7.8 7.5	12	9.80 074	15	9.91 147	25	0.08 853	9.88 927	10	48
4 10.4 10.0	13	9.80 089	16	9.91 172	26	0.08 828	9.88 917	11	47
5 13.0 12.5	14	9.80 105	15	9.91 198	26	0.08 802	9.88 906	10	46
6 15.6 15.0	15	9.80 120	16	9.91 224	26	0.08 776	9.88 896	10	45
7 18.2 17.5	16	9.80 136	15	9.91 250	26	0.08 750	9.88 886	11	44
8 20.8 20.0	17	9.80 151	15	9.91 276	25	0.08 724	9.88 875	10	43
9 23.4 22.5	18	9.80 166	16	9.91 301	26	0.08 699	9.88 865	10	42
	19	9.80 182	15	9.91 327	26	0.08 673	9.88 855	10	41
	20	9.80 197	16	9.91 353	26	0.08 647	9.88 844	11	40
	21	9.80 213	15	9.91 379	25	0.08 621	9.88 834	10	39
	22	9.80 228	16	9.91 404	26	0.08 596	9.88 824	10	38
	23	9.80 244	15	9.91 430	26	0.08 570	9.88 813	11	37
	24	9.80 259	15	9.91 456	26	0.08 544	9.88 803	10	36
	25	9.80 274	16	9.91 482	25	0.08 518	9.88 793	10	35
	26	9.80 290	15	9.91 507	26	0.08 493	9.88 782	11	34
16 15	27	9.80 305	15	9.91 533	26	0.08 467	9.88 772	10	33
1 1.6 1.5	28	9.80 320	16	9.91 559	26	0.08 441	9.88 761	11	32
2 3.2 3.0	29	9.80 336	15	9.91 585	26	0.08 415	9.88 751	10	31
3 4.8 4.5	30	9.80 351	15	9.91 610	25	0.08 390	9.88 741	10	30
4 6.4 6.0	31	9.80 366	16	9.91 636	26	0.08 364	9.88 730	11	29
5 8.0 7.5	32	9.80 382	15	9.91 662	26	0.08 338	9.88 720	10	28
6 9.6 9.0	33	9.80 397	15	9.91 688	26	0.08 312	9.88 709	11	27
7 11.2 10.5	34	9.80 412	16	9.91 713	25	0.08 287	9.88 699	10	26
8 12.8 12.0	35	9.80 428	15	9.91 739	26	0.08 261	9.88 688	11	25
9 14.4 13.5	36	9.80 443	15	9.91 765	26	0.08 235	9.88 678	10	24
	37	9.80 458	15	9.91 791	26	0.08 209	9.88 668	10	23
	38	9.80 473	16	9.91 816	25	0.08 184	9.88 657	11	22
	39	9.80 489	15	9.91 842	26	0.08 158	9.88 647	10	21
	40	9.80 504	15	9.91 868	26	0.08 132	9.88 636	11	20
	41	9.80 519	15	9.91 893	25	0.08 107	9.88 626	10	19
	42	9.80 534	16	9.91 919	26	0.08 081	9.88 615	11	18
	43	9.80 550	15	9.91 945	26	0.08 055	9.88 605	10	17
11 10	44	9.80 565	15	9.91 971	26	0.08 029	9.88 594	11	16
1 1.1 1.0	45	9.80 580	15	9.91 996	25	0.08 004	9.88 584	10	15
2 2.2 2.0	46	9.80 595	15	9.92 022	26	0.07 978	9.88 573	11	14
3 3.3 3.0	47	9.80 610	15	9.92 048	26	0.07 952	9.88 563	10	13
4 4.4 4.0	48	9.80 625	15	9.92 073	25	0.07 927	9.88 552	11	12
5 5.5 5.0	49	9.80 641	16	9.92 099	26	0.07 901	9.88 542	10	11
6 6.6 6.0	50	9.80 656	15	9.92 125	26	0.07 875	9.88 531	11	10
7 7.7 7.0	51	9.80 671	15	9.92 150	25	0.07 850	9.88 521	10	9
8 8.8 8.0	52	9.80 686	15	9.92 176	26	0.07 824	9.88 510	11	8
9 9.9 9.0	53	9.80 701	15	9.92 202	26	0.07 798	9.88 499	11	7
	54	9.80 716	15	9.92 227	25	0.07 773	9.88 489	10	6
	55	9.80 731	15	9.92 253	26	0.07 747	9.88 478	11	5
	56	9.80 746	16	9.92 279	26	0.07 721	9.88 468	10	4
	57	9.80 762	15	9.92 304	25	0.07 696	9.88 457	11	3
	58	9.80 777	15	9.92 330	26	0.07 670	9.88 447	10	2
	59	9.80 792	15	9.92 356	26	0.07 644	9.88 436	11	1
	60	9.80 807		9.92 381	25	0.07 619	9.88 425	11	0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.80 807		9.92 381		0.07 619	9.88 425		60	
		15		26			10		
1	9.80 822		9.92 407		0.07 593	9.88 415		59	
		15		26			11		
2	9.80 837		9.92 433	25	0.07 567	9.88 404	10	58	
		15							
3	9.80 852		9.92 458	26	0.07 542	9.88 394	11	57	
		15							
4	9.80 867		9.92 484		0.07 516	9.88 383		56	
		15		26			11		
5	9.80 882		9.92 510		0.07 490	9.88 372		55	
		15		25			10		
6	9.80 897		9.92 535		0.07 465	9.88 362		54	
		15		26			11		
7	9.80 912		9.92 561		0.07 439	9.88 351		53	
		15		26			11		
8	9.80 927		9.92 587		0.07 413	9.88 340		52	
		15		25			10		
9	9.80 942		9.92 612		0.07 388	9.88 330		51	
		15		26			11		
10	9.80 957		9.92 638		0.07 362	9.88 319		50	
		15		25			11		
11	9.80 972		9.92 663		0.07 337	9.88 308		49	
		15		26			10		
12	9.80 987		9.92 689		0.07 311	9.88 298		48	
		15		26			11		
13	9.81 002		9.92 715		0.07 285	9.88 287		47	
		15		25			11		
14	9.81 017		9.92 740		0.07 260	9.88 276		46	
		15		26			10		
15	9.81 032		9.92 766		0.07 234	9.88 266		45	
		15		26			11		
16	9.81 047		9.92 792		0.07 208	9.88 255		44	
		14		25			11		
17	9.81 061		9.92 817		0.07 183	9.88 244		43	
		15		26			10		
18	9.81 076		9.92 843		0.07 157	9.88 234		42	
		15		25			11		
19	9.81 091		9.92 868		0.07 132	9.88 223		41	
		15		26			11		
20	9.81 106		9.92 894		0.07 106	9.88 212		40	
		15		26			11		
21	9.81 121		9.92 920		0.07 080	9.88 201		39	
		15		25			10		
22	9.81 136		9.92 945		0.07 055	9.88 191		38	
		15		26			11		
23	9.81 151		9.92 971		0.07 029	9.88 180		37	
		15		25			11		
24	9.81 166		9.92 996		0.07 004	9.88 169		36	
		14		26			11		
25	9.81 180		9.93 022		0.06 978	9.88 158		35	
		15		26			10		
26	9.81 195		9.93 048		0.06 952	9.88 148		34	
		15		25			11		
27	9.81 210		9.93 073		0.06 927	9.88 137		33	
		15		26			11		
28	9.81 225		9.93 099		0.06 901	9.88 126		32	
		15		25			11		
29	9.81 240		9.93 124		0.06 876	9.88 115		31	
		14		26			10		
30	9.81 254		9.93 150		0.06 850	9.88 105		30	
		15		25			11		
31	9.81 269		9.93 175		0.06 825	9.88 094		29	
		15		26			11		
32	9.81 284		9.93 201		0.06 799	9.88 083		28	
		15		26			11		
33	9.81 299		9.93 227		0.06 773	9.88 072		27	
		15		25			11		
34	9.81 314		9.93 252		0.06 748	9.88 061		26	
		14		26			10		
35	9.81 328		9.93 278		0.06 722	9.88 051		25	
		15		25			11		
36	9.81 343		9.93 303		0.06 697	9.88 040		24	
		15		26			11		
37	9.81 358		9.93 329		0.06 671	9.88 029		23	
		14		25			11		
38	9.81 372		9.93 354		0.06 646	9.88 018		22	
		15		26			11		
39	9.81 387		9.93 380		0.06 620	9.88 007		21	
		15		26			11		
40	9.81 402		9.93 406		0.06 594	9.87 996		20	
		15		25			11		
41	9.81 417		9.93 431		0.06 569	9.87 985		19	
		14		26			10		
42	9.81 431		9.93 457		0.06 543	9.87 975		18	
		15		25			11		
43	9.81 446		9.93 482		0.06 518	9.87 964		17	
		15		26			11		
44	9.81 461		9.93 508		0.06 492	9.87 953		16	
		14		25			11		
45	9.81 475		9.93 533		0.06 467	9.87 942		15	
		15		26			11		
46	9.81 490		9.93 559		0.06 441	9.87 931		14	
		15		25			11		
47	9.81 505		9.93 584		0.06 416	9.87 920		13	
		14		26			11		
48	9.81 519		9.93 610		0.06 390	9.87 909		12	
		15		26			11		
49	9.81 534		9.93 636		0.06 364	9.87 898		11	
		15		25			11		
50	9.81 549		9.93 661		0.06 339	9.87 887		10	
		14		26			10		
51	9.81 563		9.93 687		0.06 313	9.87 877		9	
		15		25			11		
52	9.81 578		9.93 712		0.06 288	9.87 866		8	
		14		26			11		
53	9.81 592		9.93 738		0.06 262	9.87 855		7	
		15		25			11		
54	9.81 607		9.93 763		0.06 237	9.87 844		6	
		15		26			11		
55	9.81 622		9.93 789		0.06 211	9.87 833		5	
		14		25			11		
56	9.81 636		9.93 814		0.06 186	9.87 822		4	
		15		26			11		
57	9.81 651		9.93 840		0.06 160	9.87 811		3	
		14		25			11		
58	9.81 665		9.93 865		0.06 135	9.87 800		2	
		15		26			11		
59	9.81 680		9.93 891		0.06 109	9.87 789		1	
		14		25			11		
60	9.81 694		9.93 916		0.06 084	9.87 778		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	15	14
1	1.5	1.4
2	3.0	2.8
3	4.5	4.2
4	6.0	5.6
5	7.5	7.0
6	9.0	8.4
7	10.5	9.8
8	12.0	11.2
9	13.5	12.6

	11	10
1	1.1	1.0
2	2.2	2.0
3	3.3	3.0
4	4.4	4.0
5	5.5	5.0
6	6.6	6.0
7	7.7	7.0
8	8.8	8.0
9	9.9	9.0

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.81 694	15	9.93 916	26	0.06 084	9.87 778	11	60
	1	9.81 709	14	9.93 942	25	0.06 058	9.87 767	11	59
	2	9.81 723	15	9.93 967	26	0.06 033	9.87 756	11	58
	3	9.81 738	14	9.93 993	25	0.06 007	9.87 745	11	57
	4	9.81 752	15	9.94 018	26	0.05 982	9.87 734	11	56
	5	9.81 767	14	9.94 044	25	0.05 956	9.87 723	11	55
	6	9.81 781	15	9.94 069	26	0.05 931	9.87 712	11	54
	7	9.81 796	14	9.94 095	25	0.05 905	9.87 701	11	53
	8	9.81 810	15	9.94 120	26	0.05 880	9.87 690	11	52
	9	9.81 825	14	9.94 146	25	0.05 854	9.87 679	11	51
	10	9.81 839	15	9.94 171	26	0.05 829	9.87 668	11	50
	11	9.81 854	14	9.94 197	25	0.05 803	9.87 657	11	49
	12	9.81 868	14	9.94 222	26	0.05 778	9.87 646	11	48
	13	9.81 882	15	9.94 248	25	0.05 752	9.87 635	11	47
	14	9.81 897	14	9.94 273	26	0.05 727	9.87 624	11	46
	15	9.81 911	15	9.94 299	25	0.05 701	9.87 613	12	45
	16	9.81 926	14	9.94 324	26	0.05 676	9.87 601	11	44
	17	9.81 940	15	9.94 350	25	0.05 650	9.87 590	11	43
	18	9.81 955	14	9.94 375	26	0.05 625	9.87 579	11	42
	19	9.81 969	14	9.94 401	25	0.05 599	9.87 568	11	41
	20	9.81 983	15	9.94 426	26	0.05 574	9.87 557	11	40
	21	9.81 998	14	9.94 452	25	0.05 548	9.87 546	11	39
	22	9.82 012	14	9.94 477	26	0.05 523	9.87 535	11	38
	23	9.82 026	15	9.94 503	25	0.05 497	9.87 524	11	37
	24	9.82 041	14	9.94 528	26	0.05 472	9.87 513	12	36
	25	9.82 055	14	9.94 554	25	0.05 446	9.87 501	11	35
	26	9.82 069	15	9.94 579	25	0.05 421	9.87 490	11	34
	27	9.82 084	14	9.94 604	26	0.05 396	9.87 479	11	33
	28	9.82 098	14	9.94 630	25	0.05 370	9.87 468	11	32
	29	9.82 112	14	9.94 655	26	0.05 345	9.87 457	11	31
	30	9.82 126	15	9.94 681	25	0.05 319	9.87 446	12	30
	31	9.82 141	14	9.94 706	26	0.05 294	9.87 434	11	29
	32	9.82 155	14	9.94 732	25	0.05 268	9.87 423	11	28
	33	9.82 169	15	9.94 757	26	0.05 243	9.87 412	11	27
	34	9.82 184	14	9.94 783	25	0.05 217	9.87 401	11	26
	35	9.82 198	14	9.94 808	26	0.05 192	9.87 390	12	25
	36	9.82 212	14	9.94 834	25	0.05 166	9.87 378	11	24
	37	9.82 226	14	9.94 859	25	0.05 141	9.87 367	11	23
	38	9.82 240	15	9.94 884	26	0.05 116	9.87 356	11	22
	39	9.82 255	14	9.94 910	25	0.05 090	9.87 345	11	21
	40	9.82 269	14	9.94 935	26	0.05 065	9.87 334	12	20
	41	9.82 283	14	9.94 961	25	0.05 039	9.87 322	11	19
	42	9.82 297	14	9.94 986	26	0.05 014	9.87 311	11	18
	43	9.82 311	15	9.95 012	25	0.04 988	9.87 300	12	17
	44	9.82 326	14	9.95 037	25	0.04 963	9.87 288	11	16
	45	9.82 340	14	9.95 062	26	0.04 938	9.87 277	11	15
	46	9.82 354	14	9.95 088	25	0.04 912	9.87 266	11	14
	47	9.82 368	14	9.95 113	26	0.04 887	9.87 255	12	13
	48	9.82 382	14	9.95 139	25	0.04 861	9.87 243	11	12
	49	9.82 396	14	9.95 164	26	0.04 836	9.87 232	11	11
	50	9.82 410	14	9.95 190	25	0.04 810	9.87 221	12	10
	51	9.82 424	15	9.95 215	25	0.04 785	9.87 209	11	9
	52	9.82 439	14	9.95 240	26	0.04 760	9.87 198	11	8
	53	9.82 453	14	9.95 266	25	0.04 734	9.87 187	12	7
	54	9.82 467	14	9.95 291	26	0.04 709	9.87 175	11	6
	55	9.82 481	14	9.95 317	25	0.04 683	9.87 164	11	5
	56	9.82 495	14	9.95 342	26	0.04 658	9.87 153	12	4
	57	9.82 509	14	9.95 368	25	0.04 632	9.87 141	11	3
	58	9.82 523	14	9.95 393	25	0.04 607	9.87 130	11	2
	59	9.82 537	14	9.95 418	26	0.04 582	9.87 119	12	1
	60	9.82 551		9.95 444		0.04 556	9.87 107		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	15	14
1	1.5	1.4
2	3.0	2.8
3	4.5	4.2
4	6.0	5.6
5	7.5	7.0
6	9.0	8.4
7	10.5	9.8
8	12.0	11.2
9	13.5	12.6

	12	11
1	1.2	1.1
2	2.4	2.2
3	3.6	3.3
4	4.8	4.4
5	6.0	5.5
6	7.2	6.6
7	8.4	7.7
8	9.6	8.8
9	10.8	9.9

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.82 551	14	9.95 444	25	0.04 556	9.87 107	11	60	
1	9.82 565	14	9.95 469	26	0.04 531	9.87 096	11	59	
2	9.82 579	14	9.95 495	25	0.04 505	9.87 085	12	58	
3	9.82 593	14	9.95 520	25	0.04 480	9.87 073	11	57	
4	9.82 607	14	9.95 545	26	0.04 455	9.87 062	12	56	
5	9.82 621	14	9.95 571	25	0.04 429	9.87 050	11	55	
6	9.82 635	14	9.95 596	26	0.04 404	9.87 039	11	54	
7	9.82 649	14	9.95 622	25	0.04 378	9.87 028	12	53	
8	9.82 663	14	9.95 647	25	0.04 353	9.87 016	11	52	
9	9.82 677	14	9.95 672	26	0.04 328	9.87 005	12	51	
10	9.82 691	14	9.95 698	25	0.04 302	9.86 993	11	50	
11	9.82 705	14	9.95 723	25	0.04 277	9.86 982	12	49	
12	9.82 719	14	9.95 748	26	0.04 252	9.86 970	11	48	
13	9.82 733	14	9.95 774	25	0.04 226	9.86 959	12	47	
14	9.82 747	14	9.95 799	26	0.04 201	9.86 947	11	46	
15	9.82 761	14	9.95 825	25	0.04 175	9.86 936	12	45	
16	9.82 775	13	9.95 850	25	0.04 150	9.86 924	11	44	
17	9.82 788	14	9.95 875	26	0.04 125	9.86 913	11	43	
18	9.82 802	14	9.95 901	25	0.04 099	9.86 902	12	42	
19	9.82 816	14	9.95 926	26	0.04 074	9.86 890	11	41	
20	9.82 830	14	9.95 952	25	0.04 048	9.86 879	12	40	
21	9.82 844	14	9.95 977	25	0.04 023	9.86 867	12	39	
22	9.82 858	14	9.96 002	26	0.03 998	9.86 855	11	38	
23	9.82 872	13	9.96 028	25	0.03 972	9.86 844	12	37	
24	9.82 885	14	9.96 053	25	0.03 947	9.86 832	11	36	
25	9.82 899	14	9.96 078	26	0.03 922	9.86 821	12	35	
26	9.82 913	14	9.96 104	25	0.03 896	9.86 809	11	34	
27	9.82 927	14	9.96 129	26	0.03 871	9.86 798	12	33	
28	9.82 941	14	9.96 155	25	0.03 845	9.86 786	11	32	
29	9.82 955	13	9.96 180	25	0.03 820	9.86 775	12	31	
30	9.82 968	14	9.96 205	26	0.03 795	9.86 763	11	30	
31	9.82 982	14	9.96 231	25	0.03 769	9.86 752	12	29	
32	9.82 996	14	9.96 256	25	0.03 744	9.86 740	12	28	
33	9.83 010	13	9.96 281	26	0.03 719	9.86 728	11	27	
34	9.83 023	14	9.96 307	25	0.03 693	9.86 717	12	26	
35	9.83 037	14	9.96 332	25	0.03 668	9.86 705	11	25	
36	9.83 051	14	9.96 357	26	0.03 643	9.86 694	12	24	
37	9.83 065	13	9.96 383	25	0.03 617	9.86 682	12	23	
38	9.83 078	14	9.96 408	25	0.03 592	9.86 670	11	22	
39	9.83 092	14	9.96 433	26	0.03 567	9.86 659	12	21	
40	9.83 106	14	9.96 459	25	0.03 541	9.86 647	12	20	
41	9.83 120	13	9.96 484	26	0.03 516	9.86 635	11	19	
42	9.83 133	14	9.96 510	25	0.03 490	9.86 624	12	18	
43	9.83 147	14	9.96 535	25	0.03 465	9.86 612	12	17	
44	9.83 161	13	9.96 560	26	0.03 440	9.86 600	11	16	
45	9.83 174	14	9.96 586	25	0.03 414	9.86 589	12	15	
46	9.83 188	14	9.96 611	25	0.03 389	9.86 577	12	14	
47	9.83 202	13	9.96 636	26	0.03 364	9.86 565	11	13	
48	9.83 215	14	9.96 662	25	0.03 338	9.86 554	12	12	
49	9.83 229	13	9.96 687	25	0.03 313	9.86 542	12	11	
50	9.83 242	14	9.96 712	26	0.03 288	9.86 530	12	10	
51	9.83 256	14	9.96 738	25	0.03 262	9.86 518	11	9	
52	9.83 270	13	9.96 763	25	0.03 237	9.86 507	12	8	
53	9.83 283	14	9.96 788	26	0.03 212	9.86 495	12	7	
54	9.83 297	13	9.96 814	25	0.03 186	9.86 483	12	6	
55	9.83 310	14	9.96 839	25	0.03 161	9.86 472	11	5	
56	9.83 324	14	9.96 864	26	0.03 136	9.86 460	12	4	
57	9.83 338	13	9.96 890	25	0.03 110	9.86 448	12	3	
58	9.83 351	14	9.96 915	25	0.03 085	9.86 436	12	2	
59	9.83 365	13	9.96 940	26	0.03 060	9.86 425	11	1	
60	9.83 378		9.96 966		0.03 034	9.86 413	12	0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	14	13
1	1.4	1.3
2	2.8	2.6
3	4.2	3.9
4	5.6	5.2
5	7.0	6.5
6	8.4	7.8
7	9.8	9.1
8	11.2	10.4
9	12.6	11.7

	12	11
1	1.2	1.1
2	2.4	2.2
3	3.6	3.3
4	4.8	4.4
5	6.0	5.5
6	7.2	6.6
7	8.4	7.7
8	9.6	8.8
9	10.8	9.9

Proportional Parts	′	L Sin	d	L Tan	c d	L Cot	L Cos	d	
	0	9.83 378	14	9.96 966	25	0.03 034	9.86 413	12	60
	1	9.83 392	13	9.96 991	25	0.03 009	9.86 401	12	59
	2	9.83 405	14	9.97 016	26	0.02 984	9.86 389	12	58
	3	9.83 419	13	9.97 042	25	0.02 958	9.86 377	11	57
	4	9.83 432	14	9.97 067	25	0.02 933	9.86 366	12	56
	5	9.83 446	13	9.97 092	26	0.02 908	9.86 354	12	55
	6	9.83 459	14	9.97 118	25	0.02 882	9.86 342	12	54
	7	9.83 473	13	9.97 143	25	0.02 857	9.86 330	12	53
	8	9.83 486	14	9.97 168	25	0.02 832	9.86 318	12	52
26 25	9	9.83 500	13	9.97 193	26	0.02 807	9.86 306	11	51
1 2.6 2.5	10	9.83 513	14	9.97 219	25	0.02 781	9.86 295	12	50
2 5.2 5.0	11	9.83 527	13	9.97 244	25	0.02 756	9.86 283	12	49
3 7.8 7.5	12	9.83 540	14	9.97 269	26	0.02 731	9.86 271	12	48
4 10.4 10.0	13	9.83 554	13	9.97 295	25	0.02 705	9.86 259	12	47
5 13.0 12.5	14	9.83 567	14	9.97 320	25	0.02 680	9.86 247	12	46
6 15.6 15.0	15	9.83 581	13	9.97 345	26	0.02 655	9.86 235	12	45
7 18.2 17.5	16	9.83 594	14	9.97 371	25	0.02 629	9.86 223	12	44
8 20.8 20.0	17	9.83 608	13	9.97 396	25	0.02 604	9.86 211	11	43
9 23.4 22.5	18	9.83 621	13	9.97 421	26	0.02 579	9.86 200	12	42
	19	9.83 634	14	9.97 447	25	0.02 553	9.86 188	12	41
	20	9.83 648	13	9.97 472	25	0.02 528	9.86 176	12	40
	21	9.83 661	13	9.97 497	26	0.02 503	9.86 164	12	39
	22	9.83 674	14	9.97 523	25	0.02 477	9.86 152	12	38
	23	9.83 688	13	9.97 548	25	0.02 452	9.86 140	12	37
	24	9.83 701	14	9.97 573	25	0.02 427	9.86 128	12	36
	25	9.83 715	13	9.97 598	26	0.02 402	9.86 116	12	35
	26	9.83 728	13	9.97 624	25	0.02 376	9.86 104	12	34
14 13	27	9.83 741	14	9.97 649	25	0.02 351	9.86 092	12	33
1 1.4 1.3	28	9.83 755	13	9.97 674	26	0.02 326	9.86 080	12	32
2 2.8 2.6	29	9.83 768	13	9.97 700	25	0.02 300	9.86 068	12	31
3 4.2 3.9	30	9.83 781	14	9.97 725	25	0.02 275	9.86 056	12	30
4 5.6 5.2	31	9.83 795	13	9.97 750	25	0.02 250	9.86 044	12	29
5 7.0 6.5	32	9.83 808	13	9.97 776	26	0.02 224	9.86 032	12	28
6 8.4 7.8	33	9.83 821	13	9.97 801	25	0.02 199	9.86 020	12	27
7 9.8 9.1	34	9.83 834	14	9.97 826	25	0.02 174	9.86 008	12	26
8 11.2 10.4	35	9.83 848	13	9.97 851	26	0.02 149	9.85 996	12	25
9 12.6 11.7	36	9.83 861	13	9.97 877	25	0.02 123	9.85 984	12	24
	37	9.83 874	13	9.97 902	25	0.02 098	9.85 972	12	23
	38	9.83 887	14	9.97 927	26	0.02 073	9.85 960	12	22
	39	9.83 901	13	9.97 953	25	0.02 047	9.85 948	12	21
	40	9.83 914	13	9.97 978	25	0.02 022	9.85 936	12	20
	41	9.83 927	13	9.98 003	26	0.01 997	9.85 924	12	19
	42	9.83 940	14	9.98 029	25	0.01 971	9.85 912	12	18
	43	9.83 954	13	9.98 054	25	0.01 946	9.85 900	12	17
12 11	44	9.83 967	13	9.98 079	25	0.01 921	9.85 888	12	16
1 1.2 1.1	45	9.83 980	13	9.98 104	26	0.01 896	9.85 876	12	15
2 2.4 2.2	46	9.83 993	13	9.98 130	25	0.01 870	9.85 864	13	14
3 3.6 3.3	47	9.84 006	14	9.98 155	25	0.01 845	9.85 851	12	13
4 4.8 4.4	48	9.84 020	13	9.98 180	26	0.01 820	9.85 839	12	12
5 6.0 5.5	49	9.84 033	13	9.98 206	25	0.01 794	9.85 827	12	11
6 7.2 6.6	50	9.84 046	13	9.98 231	25	0.01 769	9.85 815	12	10
7 8.4 7.7	51	9.84 059	13	9.98 256	25	0.01 744	9.85 803	12	9
8 9.6 8.8	52	9.84 072	13	9.98 281	26	0.01 719	9.85 791	12	8
9 10.8 9.9	53	9.84 085	13	9.98 307	25	0.01 693	9.85 779	13	7
	54	9.84 098	14	9.98 332	25	0.01 668	9.85 766	12	6
	55	9.84 112	13	9.98 357	26	0.01 643	9.85 754	12	5
	56	9.84 125	13	9.98 383	25	0.01 617	9.85 742	12	4
	57	9.84 138	13	9.98 408	25	0.01 592	9.85 730	12	3
	58	9.84 151	13	9.98 433	25	0.01 567	9.85 718	12	2
	59	9.84 164	13	9.98 458	26	0.01 542	9.85 706	13	1
	60	9.84 177		9.98 484		0.01 516	9.85 693		0
Proportional Parts		L Cos	d	L Cot	c d	L Tan	L Sin	d	′

′	L Sin	d	L Tan	c d	L Cot	L Cos	d		Proportional Parts
0	9.84 177	13	9.98 484	25	0.01 516	9.85 693	12	60	
1	9.84 190	13	9.98 509	25	0.01 491	9.85 681	12	59	
2	9.84 203	13	9.98 534	26	0.01 466	9.85 669	12	58	
3	9.84 216	13	9.98 560	25	0.01 440	9.85 657	12	57	
4	9.84 229	13	9.98 585	25	0.01 415	9.85 645	13	56	
5	9.84 242	13	9.98 610	25	0.01 390	9.85 632	12	55	
6	9.84 255	14	9.98 635	26	0.01 365	9.85 620	12	54	
7	9.84 269	13	9.98 661	25	0.01 339	9.85 608	12	53	
8	9.84 282	13	9.98 686	25	0.01 314	9.85 596	13	52	
9	9.84 295	13	9.98 711	26	0.01 289	9.85 583	12	51	
10	9.84 308	13	9.98 737	25	0.01 263	9.85 571	12	50	
11	9.84 321	13	9.98 762	25	0.01 238	9.85 559	12	49	
12	9.84 334	13	9.98 787	25	0.01 213	9.85 547	13	48	
13	9.84 347	13	9.98 812	26	0.01 188	9.85 534	12	47	
14	9.84 360	13	9.98 838	25	0.01 162	9.85 522	12	46	
15	9.84 373	12	9.98 863	25	0.01 137	9.85 510	13	45	
16	9.84 385	13	9.98 888	25	0.01 112	9.85 497	12	44	
17	9.84 398	13	9.98 913	26	0.01 087	9.85 485	12	43	
18	9.84 411	13	9.98 939	25	0.01 061	9.85 473	13	42	
19	9.84 424	13	9.98 964	25	0.01 036	9.85 460	12	41	
20	9.84 437	13	9.98 989	26	0.01 011	9.85 448	12	40	
21	9.84 450	13	9.99 015	25	0.00 985	9.85 436	13	39	
22	9.84 463	13	9.99 040	25	0.00 960	9.85 423	12	38	
23	9.84 476	13	9.99 065	25	0.00 935	9.85 411	12	37	
24	9.84 489	13	9.99 090	26	0.00 910	9.85 399	13	36	
25	9.84 502	13	9.99 116	25	0.00 884	9.85 386	12	35	
26	9.84 515	13	9.99 141	25	0.00 859	9.85 374	13	34	
27	9.84 528	12	9.99 166	25	0.00 834	9.85 361	12	33	
28	9.84 540	13	9.99 191	26	0.00 809	9.85 349	12	32	
29	9.84 553	13	9.99 217	25	0.00 783	9.85 337	13	31	
30	9.84 566	13	9.99 242	25	0.00 758	9.85 324	12	30	
31	9.84 579	13	9.99 267	26	0.00 733	9.85 312	13	29	
32	9.84 592	13	9.99 293	25	0.00 707	9.85 299	12	28	
33	9.84 605	13	9.99 318	25	0.00 682	9.85 287	13	27	
34	9.84 618	12	9.99 343	25	0.00 657	9.85 274	12	26	
35	9.84 630	13	9.99 368	26	0.00 632	9.85 262	12	25	
36	9.84 643	13	9.99 394	25	0.00 606	9.85 250	13	24	
37	9.84 656	13	9.99 419	25	0.00 581	9.85 237	12	23	
38	9.84 669	13	9.99 444	25	0.00 556	9.85 225	13	22	
39	9.84 682	12	9.99 469	26	0.00 531	9.85 212	12	21	
40	9.84 694	13	9.99 495	25	0.00 505	9.85 200	13	20	
41	9.84 707	13	9.99 520	25	0.00 480	9.85 187	12	19	
42	9.84 720	13	9.99 545	25	0.00 455	9.85 175	13	18	
43	9.84 733	12	9.99 570	26	0.00 430	9.85 162	12	17	
44	9.84 745	13	9.99 596	25	0.00 404	9.85 150	13	16	
45	9.84 758	13	9.99 621	25	0.00 379	9.85 137	12	15	
46	9.84 771	13	9.99 646	26	0.00 354	9.85 125	13	14	
47	9.84 784	12	9.99 672	25	0.00 328	9.85 112	12	13	
48	9.84 796	13	9.99 697	25	0.00 303	9.85 100	13	12	
49	9.84 809	13	9.99 722	25	0.00 278	9.85 087	13	11	
50	9.84 822	13	9.99 747	26	0.00 253	9.85 074	12	10	
51	9.84 835	12	9.99 773	25	0.00 227	9.85 062	13	9	
52	9.84 847	13	9.99 798	25	0.00 202	9.85 049	12	8	
53	9.84 860	13	9.99 823	25	0.00 177	9.85 037	13	7	
54	9.84 873	12	9.99 848	26	0.00 152	9.85 024	12	6	
55	9.84 885	13	9.99 874	25	0.00 126	9.85 012	13	5	
56	9.84 898	13	9.99 899	25	0.00 101	9.84 999	13	4	
57	9.84 911	12	9.99 924	25	0.00 076	9.84 986	12	3	
58	9.84 923	13	9.99 949	26	0.00 051	9.84 974	13	2	
59	9.84 936	13	9.99 975	25	0.00 025	9.84 961	12	1	
60	9.84 949		0.00 000		0.00 000	9.84 949		0	
	L Cos	d	L Cot	c d	L Tan	L Sin	d	′	Proportional Parts

	26	25	14
1	2.6	2.5	1.4
2	5.2	5.0	2.8
3	7.8	7.5	4.2
4	10.4	10.0	5.6
5	13.0	12.5	7.0
6	15.6	15.0	8.4
7	18.2	17.5	9.8
8	20.8	20.0	11.2
9	23.4	22.5	12.6

	13	12
1	1.3	1.2
2	2.6	2.4
3	3.9	3.6
4	5.2	4.8
5	6.5	6.0
6	7.8	7.2
7	9.1	8.4
8	10.4	9.6
9	11.7	10.8

Degrees	Radians	Sin	Cos	Tan	Cot	Sec	Csc		
0° 00′	.0000	.0000	1.0000	.0000	——	1.000	——	1.5708	90° 00′
10	029	029	000	029	343.8	000	343.8	679	50
20	058	058	000	058	171.9	000	171.9	650	40
30	.0087	.0087	1.0000	.0087	114.6	1.000	114.6	1.5621	30
40	116	116	.9999	116	85.94	000	85.95	592	20
50	145	145	999	145	68.75	000	68.76	563	10
1° 00′	.0175	.0175	.9998	.0175	57.29	1.000	57.30	1.5533	89° 00′
10	204	204	998	204	49.10	000	49.11	504	50
20	233	233	997	233	42.96	000	42.98	475	40
30	.0262	.0262	.9997	.0262	38.19	1.000	38.20	1.5446	30
40	291	291	996	291	34.37	000	34.38	417	20
50	320	320	995	320	31.24	001	31.26	388	10
2° 00′	.0349	.0349	.9994	.0349	28.64	1.001	28.65	1.5359	88° 00′
10	378	378	993	378	26.43	001	26.45	330	50
20	407	407	992	407	24.54	001	24.56	301	40
30	.0436	.0436	.9990	.0437	22.90	1.001	22.93	1.5272	30
40	465	465	989	466	21.47	001	21.49	243	20
50	495	494	988	495	20.21	001	20.23	213	10
3° 00′	.0524	.0523	.9986	.0524	19.08	1.001	19.11	1.5184	87° 00′
10	553	552	985	553	18.07	002	18.10	155	50
20	582	581	983	582	17.17	002	17.20	126	40
30	.0611	.0610	.9981	.0612	16.35	1.002	16.38	1.5097	30
40	640	640	980	641	15.60	002	15.64	068	20
50	669	669	978	670	14.92	002	14.96	039	10
4° 00′	.0698	.0698	.9976	.0699	14.30	1.002	14.34	1.5010	86° 00′
10	727	727	974	729	13.73	003	13.76	981	50
20	756	756	971	758	13.20	003	13.23	952	40
30	.0785	.0785	.9969	.0787	12.71	1.003	12.75	1,4923	30
40	814	814	967	816	12.25	003	12.29	893	20
50	844	843	964	846	11.83	004	11.87	864	10
5° 00′	.0873	.0872	.9962	.0875	11.43	1.004	11.47	1.4835	85° 00′
10	902	901	959	904	11.06	004	11.10	806	50
20	931	929	957	934	10.71	004	10.76	777	40
30	.0960	.0958	.9954	.0963	10.39	1.005	10.43	1.4748	30
40	989	987	951	992	10.08	005	10.13	719	20
50	.1018	.1016	948	.1022	9.788	005	9.839	690	10
6° 00′	.1047	.1045	.9945	.1051	9.514	1.006	9.567	1.4661	84° 00′
10	076	074	942	080	9.255	006	9.309	632	50
20	105	103	939	110	9.010	006	9.065	603	40
30	.1134	.1132	.9936	.1139	8.777	1.006	8.834	1.4573	30
40	164	161	932	169	8.556	007	8.614	544	20
50	193	190	929	198	8.345	007	8.405	515	10
7° 00′	.1222	.1219	.9925	.1228	8.144	1.008	8.206	1.4486	83° 00′
10	251	248	922	257	7.953	008	8.016	457	50
20	280	276	918	287	7.770	008	7.834	428	40
30	.1309	.1305	.9914	.1317	7.596	1.009	7.661	1.4399	30
40	338	334	911	346	7.429	009	7.496	370	20
50	367	363	907	376	7.269	009	7.337	341	10
8° 00′	.1396	.1392	.9903	.1405	7.115	1.010	7.185	1.4312	82° 00′
10	425	421	899	435	6.968	010	7.040	283	50
20	454	449	894	465	6.827	011	6.900	254	40
30	.1484	.1478	.9890	.1495	6.691	1.011	6.765	1.4224	30
40	513	507	886	524	6.561	012	6.636	195	20
50	542	536	881	554	6.435	012	6.512	166	10
9° 00′	.1571	.1564	.9877	.1584	6.314	1.012	6.392	1.4137	81° 00′
		Cos	Sin	Cot	Tan	Csc	Sec	Radians	Degrees

Degrees	Radians	Sin	Cos	Tan	Cot	Sec	Csc		
9° 00′	.1571	.1564	.9877	.1584	6.314	1.012	6.392	1.4137	81° 00′
10	600	593	872	614	197	013	277	108	50
20	629	622	868	644	084	013	166	079	40
30	.1658	.1650	.9863	.1673	5.976	1.014	6.059	1.4050	30
40	687	679	858	703	871	014	5.955	1.4021	20
50	716	708	853	733	769	015	855	992	10
10° 00′	.1745	.1736	.9848	.1763	5.671	1.015	5.759	1.3963	80° 00′
10	774	765	843	793	576	016	665	934	50
20	804	794	838	823	485	016	575	904	40
30	.1833	.1822	.9833	.1853	5.396	1.017	5.487	1.3875	30
40	862	851	827	883	309	018	403	846	20
50	891	880	822	914	226	018	320	817	10
11° 00′	.1920	.1908	.9816	.1944	5.145	1.019	5.241	1.3788	79° 00′
10	949	937	811	974	066	019	164	759	50
20	978	965	805	.2004	4.989	020	089	730	40
30	.2007	.1994	.9799	.2035	4.915	1.020	5.016	1.3701	30
40	036	.2022	793	065	843	021	4.945	672	20
50	065	051	787	095	773	022	876	643	10
12° 00′	.2094	.2079	.9781	.2126	4.705	1.022	4.810	1.3614	78° 00′
10	123	108	775	156	638	023	745	584	50
20	153	136	769	186	574	024	682	555	40
30	.2182	.2164	.9763	.2217	4.511	1.024	4.620	1.3526	30
40	211	193	757	247	449	025	560	497	20
50	240	221	750	278	390	026	502	468	10
13° 00′	.2269	.2250	.9744	.2309	4.331	1.026	4.445	1.3439	77° 00′
10	298	278	737	339	275	027	390	410	50
20	327	306	730	370	219	028	336	381	40
30	.2356	.2334	.9724	.2401	4.165	1.028	4.284	1.3352	30
40	385	363	717	432	113	029	232	323	20
50	414	391	710	462	061	030	182	294	10
14° 00′	.2443	.2419	.9703	.2493	4.011	1.031	4.134	1.3265	76° 00′
10	473	447	696	524	3.962	031	086	235	50
20	502	476	689	555	914	032	039	206	40
30	.2531	.2504	.9681	.2586	3.867	1.033	3.994	1.3177	30
40	560	532	674	617	821	034	950	148	20
50	589	560	667	648	776	034	906	119	10
15° 00′	.2618	.2588	.9659	.2679	3.732	1.035	3.864	1.3090	75° 00′
10	647	616	652	711	689	036	822	061	50
20	676	644	644	742	647	037	782	032	40
30	.2705	.2672	.9636	.2773	3.606	1.038	3.742	1.3003	30
40	734	700	628	805	566	039	703	974	20
50	763	728	621	836	526	039	665	945	10
16° 00′	.2793	.2756	.9613	.2867	3.487	1.040	3.628	1.2915	74° 00′
10	822	784	605	899	450	041	592	886	50
20	851	812	596	931	412	042	556	857	40
30	.2880	.2840	.9588	.2962	3.376	1.043	3.521	1.2828	30
40	909	868	580	994	340	044	487	799	20
50	938	896	572	.3026	305	045	453	770	10
17° 00′	.2967	.2924	.9563	.3057	3.271	1.046	3.420	1.2741	73° 00′
10	996	952	555	089	237	047	388	712	50
20	.3025	979	546	121	204	048	357	683	40
30	.3054	.3007	.9537	.3153	3.172	1.048	3.326	1.2654	30
40	083	035	528	185	140	049	295	625	20
50	113	062	520	217	108	050	265	595	10
18° 00′	.3142	.3090	.9511	.3249	3.078	1.051	3.236	1.2566	72° 00′
		Cos	Sin	Cot	Tan	Csc	Sec	Radians	Degrees

Degrees	Radians	Sin	Cos	Tan	Cot	Sec	Csc		
18° 00′	.3142	.3090	.9511	.3249	3.078	1.051	3.236	1.2566	72° 00′
10	171	118	502	281	047	052	207	537	50
20	200	145	492	314	018	053	179	508	40
30	.3229	.3173	.9483	.3346	2.989	1.054	3.152	1.2479	30
40	258	201	474	378	960	056	124	450	20
50	287	228	465	411	932	057	098	421	10
19° 00′	.3316	.3256	.9455	.3443	2.904	1.058	3.072	1.2392	71° 00′
10	345	283	446	476	877	059	046	363	50
20	374	311	436	508	850	060	021	334	40
30	.3403	.3338	.9426	.3541	2.824	1.061	2.996	1.2305	30
40	432	365	417	574	798	062	971	275	20
50	462	393	407	607	773	063	947	246	10
20° 00′	.3491	.3420	.9397	.3640	2.747	1.064	2.924	1.2217	70° 00′
10	520	448	387	673	723	065	901	188	50
20	549	475	377	706	699	066	878	159	40
30	.3578	.3502	.9367	.3739	2.675	1.068	2.855	1.2130	30
40	607	529	356	772	651	069	833	101	20
50	636	557	346	805	628	070	812	072	10
21° 00′	.3665	.3584	.9336	.3839	2.605	1.071	2.790	1.2043	69° 00′
10	694	611	325	872	583	072	769	1.2014	50
20	723	638	315	906	560	074	749	985	40
30	.3752	.3665	.9304	.3939	2.539	1.075	2.729	1.1956	30
40	782	692	293	973	517	076	709	926	20
50	811	719	283	.4006	496	077	689	897	10
22° 00′	.3840	.3746	.9272	.4040	2.475	1.079	2.669	1.1868	68° 00′
10	869	773	261	074	455	080	650	839	50
20	898	800	250	108	434	081	632	810	40
30	.3927	.3827	.9239	.4142	2.414	1.082	2.613	1.1781	30
40	956	854	228	176	394	084	595	752	20
50	985	881	216	210	375	085	577	723	10
23° 00′	.4014	.3907	.9205	.4245	2.356	1.086	2.559	1.1694	67° 00′
10	043	934	194	279	337	088	542	665	50
20	072	961	182	314	318	089	525	636	40
30	.4102	.3987	.9171	.4348	2.300	1.090	2.508	1.1606	30
40	131	.4014	159	383	282	092	491	577	20
50	160	041	147	417	264	093	475	548	10
24° 00′	.4189	.4067	.9135	.4452	2.246	1.095	2.459	1.1519	66° 00′
10	218	094	124	487	229	096	443	490	50
20	247	120	112	522	211	097	427	461	40
30	.4276	.4147	.9100	.4557	2.194	1.099	2.411	1.1432	30
40	305	173	088	592	177	100	396	403	20
50	334	200	075	628	161	102	381	374	10
25° 00′	.4363	.4226	.9063	.4663	2.145	1.103	2.366	1.1345	65° 00′
10	392	253	051	699	128	105	352	316	50
20	422	279	038	734	112	106	337	286	40
30	.4451	.4305	.9026	.4770	2.097	1.108	2.323	1.1257	30
40	480	331	013	806	081	109	309	228	20
50	509	358	001	841	066	111	295	199	10
26° 00′	.4538	.4384	.8988	.4877	2.050	1.113	2.281	1.1170	64° 00′
10	567	410	975	913	035	114	268	141	50
20	596	436	962	950	020	116	254	112	40
30	.4625	.4462	.8949	.4986	2.006	1.117	2.241	1.1083	30
40	654	488	936	.5022	1.991	119	228	054	20
50	683	514	923	059	977	121	215	1.1025	10
27° 00′	.4712	.4540	.8910	.5095	1.963	1.122	2.203	1.0996	63° 00′
		Cos	Sin	Cot	Tan	Csc	Sec	Radians	Degrees

Degrees	Radians	Sin	Cos	Tan	Cot	Sec	Csc		
27° 00′	.4712	.4540	.8910	.5095	1.963	1.122	2.203	1.0996	**63° 00′**
10	741	566	897	132	949	124	190	966	50
20	771	592	884	169	935	126	178	937	40
30	.4800	.4617	.8870	.5206	1.921	1.127	2.166	1.0908	30
40	829	643	857	243	907	129	154	879	20
50	858	669	843	280	894	131	142	850	10
28° 00′	.4887	.4695	.8829	.5317	1.881	1.133	2.130	1.0821	**62° 00′**
10	916	720	816	354	868	134	118	792	50
20	945	746	802	392	855	136	107	763	40
30	.4974	.4772	.8788	.5430	1.842	1.138	2.096	1.0734	30
40	.5003	797	774	467	829	140	085	705	20
50	032	823	760	505	816	142	074	676	10
29° 00′	.5061	.4848	.8746	.5543	1.804	1.143	2.063	1.0647	**61° 00′**
10	091	874	732	581	792	145	052	617	50
20	120	899	718	619	780	147	041	588	40
30	.5149	.4924	.8704	.5658	1.767	1.149	2.031	1.0559	30
40	178	950	689	696	756	151	020	530	20
50	207	975	675	735	744	153	010	501	10
30° 00′	.5236	.5000	.8660	.5774	1.732	1.155	2.000	1.0472	**60° 00′**
10	265	025	646	812	720	157	1.990	443	50
20	294	050	631	851	709	159	980	414	40
30	.5323	.5075	.8616	.5890	1.698	1.161	1.970	1.0385	30
40	352	100	601	930	686	163	961	356	20
50	381	125	587	969	675	165	951	327	10
31° 00′	.5411	.5150	.8572	.6009	1.664	1.167	1.942	1.0297	**59° 00′**
10	440	175	557	048	653	169	932	268	50
20	469	200	542	088	643	171	923	239	40
30	.5498	.5225	.8526	.6128	1.632	1.173	1.914	1.0210	30
40	527	250	511	168	621	175	905	181	20
50	556	275	496	208	611	177	896	152	10
32° 00′	.5585	.5299	.8480	.6249	1.600	1.179	1.887	1.0123	**58° 00′**
10	614	324	465	289	590	181	878	094	50
20	643	348	450	330	580	184	870	065	40
30	.5672	.5373	.8434	.6371	1.570	1.186	1.861	1.0036	30
40	701	398	418	412	560	188	853	1.0007	20
50	730	422	403	453	550	190	844	977	10
33° 00′	.5760	.5446	.8387	.6494	1.540	1.192	1.836	.9948	**57° 00′**
10	789	471	371	536	530	195	828	919	50
20	818	495	355	577	520	197	820	890	40
30	.5847	.5519	.8339	.6619	1.511	1.199	1.812	.9861	30
40	876	544	323	661	501	202	804	832	20
50	905	568	307	703	1.492	204	796	803	10
34° 00′	.5934	.5592	.8290	.6745	1.483	1.206	1.788	.9774	**56° 00′**
10	963	616	274	787	473	209	781	745	50
20	992	640	258	830	464	211	773	716	40
30	.6021	.5664	.8241	.6873	1.455	1.213	1.766	.9687	30
40	050	688	225	916	446	216	758	657	20
50	080	712	208	959	437	218	751	628	10
35° 00′	.6109	.5736	.8192	.7002	1.428	1.221	1.743	.9599	**55° 00′**
10	138	760	175	046	419	223	736	570	50
20	167	783	158	089	411	226	729	541	40
30	.6196	.5807	.8141	.7133	1.402	1.228	1.722	.9512	30
40	225	831	124	177	393	231	715	483	20
50	254	854	107	221	385	233	708	454	10
36° 00′	.6283	.5878	.8090	.7265	1.376	1.236	1.701	.9425	**54° 00′**
		Cos	Sin	Cot	Tan	Csc	Sec	Radians	Degrees

Degrees	Radians	Sin	Cos	Tan	Cot	Sec	Csc		
36° 00′	.6283	.5878	.8090	.7265	1.376	1.236	1.701	.9425	**54° 00′**
10	312	901	073	310	368	239	695	396	50
20	341	925	056	355	360	241	688	367	40
30	.6370	.5948	.8039	.7400	1.351	1.244	1.681	.9338	30
40	400	972	021	445	343	247	675	308	20
50	429	995	004	490	335	249	668	279	10
37° 00′	.6458	.6018	.7986	.7536	1.327	1.252	1.662	.9250	**53° 00′**
10	487	041	969	581	319	255	655	221	50
20	516	065	951	627	311	258	649	192	40
30	.6545	.6088	.7934	.7673	1.303	1.260	1.643	.9163	30
40	574	111	916	720	295	263	636	134	20
50	603	134	898	766	288	266	630	105	10
38° 00′	.6632	.6157	.7880	.7813	1.280	1.269	1.624	.9076	**52° 00′**
10	661	180	862	860	272	272	618	047	50
20	690	202	844	907	265	275	612	.9018	40
30	.6720	.6225	.7826	.7954	1.257	1.278	1.606	.8988	30
40	749	248	808	.8002	250	281	601	959	20
50	778	271	790	050	242	284	595	930	10
39° 00′	.6807	.6293	.7771	.8098	1.235	1.287	1.589	.8901	**51° 00′**
10	836	316	753	146	228	290	583	872	50
20	865	338	735	195	220	293	578	843	40
30	.6894	.6361	.7716	.8243	1.213	1.296	1.572	.8814	30
40	923	383	698	292	206	299	567	785	20
50	952	406	679	342	199	302	561	756	10
40° 00′	.6981	.6428	.7660	.8391	1.192	1.305	1.556	.8727	**50° 00′**
10	.7010	450	642	441	185	309	550	698	50
20	039	472	623	491	178	312	545	668	40
30	.7069	.6494	.7604	.8541	1.171	1.315	1.540	.8639	30
40	098	517	585	591	164	318	535	610	20
50	127	539	566	642	157	322	529	581	10
41° 00′	.7156	.6561	.7547	.8693	1.150	1.325	1.524	.8552	**49° 00′**
10	185	583	528	744	144	328	519	523	50
20	214	604	509	796	137	332	514	494	40
30	.7243	.6626	.7490	.8847	1.130	1.335	1.509	.8465	30
40	272	648	470	899	124	339	504	436	20
50	301	670	451	952	117	342	499	407	10
42° 00′	.7330	.6691	.7431	.9004	1.111	1.346	1.494	.8378	**48° 00′**
10	359	713	412	057	104	349	490	348	50
20	389	734	392	110	098	353	485	319	40
30	.7418	.6756	.7373	.9163	1.091	1.356	1.480	.8290	30
40	447	777	353	217	085	360	476	261	20
50	476	799	333	271	079	364	471	232	10
43° 00′	.7505	.6820	.7314	.9325	1.072	1.367	1.466	.8203	**47° 00′**
10	534	841	294	380	066	371	462	174	50
20	563	862	274	435	060	375	457	145	40
30	.7592	.6884	.7254	.9490	1.054	1.379	1.453	.8116	30
40	621	905	234	545	048	382	448	087	20
50	650	926	214	601	042	386	444	058	10
44° 00′	.7679	.6947	.7193	.9657	1.036	1.390	1.440	.8029	**46° 00′**
10	709	967	173	713	030	394	435	999	50
20	738	988	153	770	024	398	431	970	40
30	.7767	.7009	.7133	.9827	1.018	1.402	1.427	.7941	30
40	796	030	112	884	012	406	423	912	20
50	825	050	092	942	006	410	418	883	10
45° 00′	.7854	.7071	.7071	1.000	1.000	1.414	1.414	.7854	**45° 00′**
		Cos	**Sin**	**Cot**	**Tan**	**Csc**	**Sec**	**Radians**	**Degrees**

	Nat.	Log.		Nat.	Log.		Nat.	Log.
0° 0′	.0000	——	9° 0′	.0062	7.7893	18° 0′	.0245	8.3887
10′	.0000	4.3254	10′	.0064	7.8052	10′	.0249	8.3966
20′	.0000	4.9275	20′	.0066	7.8208	20′	.0254	8.4045
30′	.0000	5.2796	30′	.0069	7.8361	30′	.0258	8.4123
40′	.0000	5.5295	40′	.0071	7.8512	40′	.0263	8.4200
50′	.0001	5.7233	50′	.0073	7.8660	50′	.0268	8.4276
1° 0′	.0001	5.8817	10° 0′	.0076	7.8806	19° 0′	.0272	8.4352
10′	.0001	6.0156	10′	.0079	7.8949	10′	.0277	8.4427
20′	.0001	6.1315	20′	.0081	7.9090	20′	.0282	8.4502
30′	.0002	6.2338	30′	.0084	7.9229	30′	.0287	8.4576
40′	.0002	6.3254	40′	.0086	7.9365	40′	.0292	8.4649
50′	.0003	6.4081	50′	.0089	7.9499	50′	.0297	8.4721
2° 0′	.0003	6.4837	11° 0′	.0092	7.9631	20° 0′	.0302	8.4793
10′	.0004	6.5532	10′	.0095	7.9762	10′	.0307	8.4865
20′	.0004	6.6176	20′	.0097	7.9890	20′	.0312	8.4935
30′	.0005	6.6775	30′	.0100	8.0016	30′	.0317	8.5006
40′	.0005	6.7336	40′	.0103	8.0141	40′	.0322	8.5075
50′	.0006	6.7862	50′	.0106	8.0264	50′	.0327	8.5144
3° 0′	.0007	6.8358	12° 0′	.0109	8.0385	21° 0′	.0332	8.5213
10′	.0008	6.8828	10′	.0112	8.0504	10′	.0337	8.5281
20′	.0008	6.9273	20′	.0115	8.0622	20′	.0343	8.5348
30′	.0009	6.9697	30′	.0119	8.0738	30′	.0348	8.5415
40′	.0010	7.0101	40′	.0122	8.0852	40′	.0353	8.5481
50′	.0011	7.0487	50′	.0125	8.0966	50′	.0359	8.5547
4° 0′	.0012	7.0856	13° 0′	.0128	8.1077	22° 0′	.0364	8.5612
10′	.0013	7.1211	10′	.0131	8.1187	10′	.0370	8.5677
20′	.0014	7.1551	20′	.0135	8.1296	20′	.0375	8.5741
30′	.0015	7.1879	30′	.0138	8.1404	30′	.0381	8.5805
40′	.0017	7.2195	40′	.0142	8.1510	40′	.0386	8.5868
50′	.0018	7.2499	50′	.0145	8.1614	50′	.0392	8.5931
5° 0′	.0019	7.2794	14° 0′	.0149	8.1718	23° 0′	.0397	8.5993
10′	.0020	7.3078	10′	.0152	8.1820	10′	.0403	8.6055
20′	.0022	7.3354	20′	.0156	8.1921	20′	.0409	8.6116
30′	.0023	7.3621	30′	.0159	8.2021	30′	.0415	8.6177
40′	.0024	7.3880	40′	.0163	8.2120	40′	.0421	8.6238
50′	.0026	7.4132	50′	.0167	8.2217	50′	.0426	8.6298
6° 0′	.0027	7.4376	15° 0′	.0170	8.2314	24° 0′	.0432	8.6358
10′	.0029	7.4614	10′	.0174	8.2409	10′	.0438	8.6417
20′	.0031	7.4845	20′	.0178	8.2504	20′	.0444	8.6476
30′	.0032	7.5071	30′	.0182	8.2597	30′	.0450	8.6534
40′	.0034	7.5290	40′	.0186	8.2689	40′	.0456	8.6592
50′	.0036	7.5504	50′	.0190	8.2781	50′	.0462	8.6650
7° 0′	.0037	7.5713	16° 0′	.0194	8.2871	25° 0′	.0468	8.6707
10′	.0039	7.5918	10′	.0198	8.2961	10′	.0475	8.6764
20′	.0041	7.6117	20′	.0202	8.3049	20′	.0481	8.6820
30′	.0043	7.6312	30′	.0206	8.3137	30′	.0487	8.6876
40′	.0045	7.6503	40′	.0210	8.3223	40′	.0493	8.6932
50′	.0047	7.6689	50′	.0214	8.3309	50′	.0500	8.6987
8° 0′	.0049	7.6872	17° 0′	.0218	8.3394	26° 0′	.0506	8.7042
10′	.0051	7.7050	10′	.0223	8.3478	10′	.0512	8.7096
20′	.0053	7.7226	20′	.0227	8.3561	20′	.0519	8.7150
30′	.0055	7.7397	30′	.0231	8.3644	30′	.0525	8.7204
40′	.0057	7.7566	40′	.0236	8.3726	40′	.0532	8.7258
50′	.0059	7.7731	50′	.0240	8.3806	50′	.0538	8.7311
9° 0′	.0062	7.7893	18° 0′	.0245	8.3887	27° 0′	.0545	8.7364
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
27° 0′	.0545	8.7364	**36° 0′**	.0955	8.9800	**45° 0′**	.1464	9.1657
10′	.0552	8.7416	10′	.0963	8.9838	10′	.1475	9.1687
20′	.0558	8.7468	20′	.0972	8.9877	20′	.1485	9.1718
30′	.0565	8.7520	30′	.0981	8.9915	30′	.1495	9.1748
40′	.0572	8.7572	40′	.0989	8.9954	40′	.1506	9.1778
50′	.0578	8.7623	50′	.0998	8.9992	50′	.1516	9.1808
28° 0′	.0585	8.7673	**37° 0′**	.1007	9.0030	**46° 0′**	.1527	9.1838
10′	.0592	8.7724	10′	.1016	9.0067	10′	.1537	9.1867
20′	.0599	8.7774	20′	.1024	9.0105	20′	.1548	9.1897
30′	.0606	8.7824	30′	.1033	9.0142	30′	.1558	9.1926
40′	.0613	8.7874	40′	.1042	9.0179	40′	.1569	9.1956
50′	.0620	8.7923	50′	.1051	9.0216	50′	.1579	9.1985
29° 0′	.0627	8.7972	**38° 0′**	.1060	9.0253	**47° 0′**	.1590	9.2014
10′	.0634	8.8021	10′	.1069	9.0289	10′	.1601	9.2043
20′	.0641	8.8069	20′	.1078	9.0326	20′	.1611	9.2072
30′	.0648	8.8117	30′	.1087	9.0362	30′	.1622	9.2101
40′	.0655	8.8165	40′	.1096	9.0398	40′	.1633	9.2129
50′	.0663	8.8213	50′	.1105	9.0434	50′	.1644	9.2158
30° 0′	.0670	8.8260	**39° 0′**	.1114	9.0470	**48° 0′**	.1654	9.2186
10′	.0677	8.8307	10′	.1123	9.0505	10′	.1665	9.2215
20′	.0684	8.8354	20′	.1133	9.0541	20′	.1676	9.2243
30′	.0692	8.8400	30′	.1142	9.0576	30′	.1687	9.2271
40′	.0699	8.8446	40′	.1151	9.0611	40′	.1698	9.2299
50′	.0707	8.8492	50′	.1160	9.0646	50′	.1709	9.2327
31° 0′	.0714	8.8538	**40° 0′**	.1170	9.0681	**49° 0′**	.1720	9.2355
10′	.0722	8.8583	10′	.1179	9.0716	10′	.1731	9.2382
20′	.0729	8.8629	20′	.1189	9.0750	20′	.1742	9.2410
30′	.0737	8.8673	30′	.1198	9.0784	30′	.1753	9.2437
40′	.0744	8.8718	40′	.1207	9.0819	40′	.1764	9.2465
50′	.0752	8.8763	50′	.1217	9.0853	50′	.1775	9.2492
32° 0′	.0760	8.8807	**41° 0′**	.1226	9.0887	**50° 0′**	.1786	9.2519
10′	.0767	8.8851	10′	.1236	9.0920	10′	.1797	9.2546
20′	.0775	8.8894	20′	.1246	9.0954	20′	.1808	9.2573
30′	.0783	8.8938	30′	.1255	9.0987	30′	.1820	9.2600
40′	.0791	8.8981	40′	.1265	9.1020	40′	.1831	9.2627
50′	.0799	8.9024	50′	.1275	9.1054	50′	.1842	9.2653
33° 0′	.0807	8.9067	**42° 0′**	.1284	9.1087	**51° 0′**	.1853	9.2680
10′	.0815	8.9109	10′	.1294	9.1119	10′	.1865	9.2706
20′	.0823	8.9152	20′	.1304	9.1152	20′	.1876	9.2732
30′	.0831	8.9194	30′	.1314	9.1185	30′	.1887	9.2759
40′	.0839	8.9236	40′	.1323	9.1217	40′	.1899	9.2785
50′	.0847	8.9277	50′	.1333	9.1249	50′	.1910	9.2811
34° 0′	.0855	8.9319	**43° 0′**	.1343	9.1282	**52° 0′**	.1922	9.2837
10′	.0863	8.9360	10′	.1353	9.1314	10′	.1933	9.2863
20′	.0871	8.9401	20′	.1363	9.1345	20′	.1945	9.2888
30′	.0879	8.9442	30′	.1373	9.1377	30′	.1956	9.2914
40′	.0888	8.9482	40′	.1383	9.1409	40′	.1968	9.2940
50′	.0896	8.9523	50′	.1393	9.1440	50′	.1979	9.2965
35° 0′	.0904	8.9563	**44° 0′**	.1403	9.1472	**53° 0′**	.1991	9.2991
10′	.0913	8.9603	10′	.1413	9.1503	10′	.2003	9.3016
20′	.0921	8.9643	20′	.1424	9.1534	20′	.2014	9.3041
30′	.0929	8.9682	30′	.1434	9.1565	30′	.2026	9.3066
40′	.0938	8.9721	40′	.1444	9.1596	40′	.2038	9.3091
50′	.0946	8.9761	50′	.1454	9.1626	50′	.2049	9.3116
36° 0′	.0955	8.9800	**45° 0′**	.1464	9.1657	**54° 0′**	.2061	9.3141
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
54° 0′	.2061	9.3141	**63° 0′**	.2730	9.4362	**72° 0′**	.3455	9.5384
10′	.2073	9.3166	10′	.2743	9.4382	10′	.3469	9.5402
20′	.2085	9.3190	20′	.2756	9.4403	20′	.3483	9.5419
30′	.2096	9.3215	30′	.2769	9.4423	30′	.3496	9.5436
40′	.2108	9.3239	40′	.2782	9.4444	40′	.3510	9.5454
50′	.2120	9.3264	50′	.2795	9.4464	50′	.3524	9.5471
55° 0′	.2132	9.3288	**64° 0′**	.2808	9.4484	**73° 0′**	.3538	9.5488
10′	.2144	9.3312	10′	.2821	9.4504	10′	.3552	9.5505
20′	.2156	9.3336	20′	.2834	9.4524	20′	.3566	9.5522
30′	.2168	9.3361	30′	.2847	9.4545	30′	.3580	9.5539
40′	.2180	9.3384	40′	.2861	9.4565	40′	.3594	9.5556
50′	.2192	9.3408	50′	.2874	9.4584	50′	.3608	9.5572
56° 0′	.2204	9.3432	**65° 0′**	.2887	9.4604	**74° 0′**	.3622	9.5589
10′	.2216	9.3456	10′	.2900	9.4624	10′	.3636	9.5606
20′	.2228	9.3480	20′	.2913	9.4644	20′	.3650	9.5623
30′	.2240	9.3503	30′	.2927	9.4664	30′	.3664	9.5639
40′	.2252	9.3527	40′	.2940	9.4683	40′	.3678	9.5656
50′	.2265	9.3550	50′	.2953	9.4703	50′	.3692	9.5672
57° 0′	.2277	9.3573	**66° 0′**	.2966	9.4722	**75° 0′**	.3706	9.5689
10′	.2289	9.3596	10′	.2980	9.4742	10′	.3720	9.5705
20′	.2301	9.3620	20′	.2993	9.4761	20′	.3734	9.5722
30′	.2314	9.3643	30′	.3006	9.4780	30′	.3748	9.5738
40′	.2326	9.3666	40′	.3020	9.4799	40′	.3762	9.5754
50′	.2338	9.3689	50′	.3033	9.4819	50′	.3776	9.5771
58° 0′	.2350	9.3711	**67° 0′**	.3046	9.4838	**76° 0′**	.3790	9.5787
10′	.2363	9.3734	10′	.3060	9.4857	10′	.3805	9.5803
20′	.2375	9.3757	20′	.3073	9.4876	20′	.3819	9.5819
30′	.2388	9.3779	30′	.3087	9.4895	30′	.3833	9.5835
40′	.2400	9.3802	40′	.3100	9.4914	40′	.3847	9.5851
50′	.2412	9.3824	50′	.3113	9.4932	50′	.3861	9.5867
59° 0′	.2425	9.3847	**68° 0′**	.3127	9.4951	**77° 0′**	.3875	9.5883
10′	.2437	9.3869	10′	.3140	9.4970	10′	.3889	9.5899
20′	.2450	9.3891	20′	.3154	9.4989	20′	.3904	9.5915
30′	.2462	9.3913	30′	.3167	9.5007	30′	.3918	9.5930
40′	.2475	9.3935	40′	.3181	9.5026	40′	.3932	9.5946
50′	.2487	9.3957	50′	.3195	9.5044	50′	.3946	9.5962
60° 0′	.2500	9.3979	**69° 0′**	.3208	9.5063	**78° 0′**	.3960	9.5977
10′	.2513	9.4001	10′	.3222	9.5081	10′	.3975	9.5993
20′	.2525	9.4023	20′	.3235	9.5099	20′	.3989	9.6009
30′	.2538	9.4045	30′	.3249	9.5117	30′	.4003	9.6024
40′	.2551	9.4066	40′	.3263	9.5136	40′	.4017	9.6039
50′	.2563	9.4088	50′	.3276	9.5154	50′	.4032	9.6055
61° 0′	.2576	9.4109	**70° 0′**	.3290	9.5172	**79° 0′**	.4046	9.6070
10′	.2589	9.4131	10′	.3304	9.5190	10′	.4060	9.6085
20′	.2601	9.4152	20′	.3317	9.5208	20′	.4075	9.6101
30′	.2614	9.4173	30′	.3331	9.5226	30′	.4089	9.6116
40′	.2627	9.4195	40′	.3345	9.5244	40′	.4103	9.6131
50′	.2640	9.4216	50′	.3358	9.5261	50′	.4117	9.6146
62° 0′	.2653	9.4237	**71° 0′**	.3372	9.5279	**80° 0′**	.4132	9.6161
10′	.2665	9.4258	10′	.3386	9.5297	10′	.4146	9.6176
20′	.2678	9.4279	20′	.3400	9.5314	20′	.4160	9.6191
30′	.2691	9.4300	30′	.3413	9.5332	30′	.4175	9.6206
40′	.2704	9.4320	40′	.3427	9.5349	40′	.4189	9.6221
50′	.2717	9.4341	50′	.3441	9.5367	50′	.4203	9.6236
63° 0′	.2730	9.4362	**72° 0′**	.3455	9.5384	**81° 0′**	.4218	9.6251
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
81° 0′	.4218	9.6251	**90° 0′**	.5000	9.6990	**99° 0′**	.5782	9.7621
10′	.4232	9.6266	10′	.5015	9.7002	10′	.5797	9.7632
20′	.4247	9.6280	20′	.5029	9.7015	20′	.5811	9.7642
30′	.4261	9.6295	30′	.5044	9.7027	30′	.5825	9.7653
40′	.4275	9.6310	40′	.5058	9.7040	40′	.5840	9.7664
50′	.4290	9.6324	50′	.5073	9.7052	50′	.5854	9.7674
82° 0′	.4304	9.6339	**91° 0′**	.5087	9.7065	**100° 0′**	.5868	9.7685
10′	.4319	9.6353	10′	.5102	9.7077	10′	.5883	9.7696
20′	.4333	9.6368	20′	.5116	9.7090	20′	.5897	9.7706
30′	.4347	9.6382	30′	.5131	9.7102	30′	.5911	9.7717
40′	.4362	9.6397	40′	.5145	9.7114	40′	.5925	9.7727
50′	.4376	9.6411	50′	.5160	9.7126	50′	.5940	9.7738
83° 0′	.4391	9.6425	**92° 0′**	.5174	9.7139	**101° 0′**	.5954	9.7748
10′	.4405	9.6440	10′	.5189	9.7151	10′	.5968	9.7759
20′	.4420	9.6454	20′	.5204	9.7163	20′	.5983	9.7769
30′	.4434	9.6468	30′	.5218	9.7175	30′	.5997	9.7779
40′	.4448	9.6482	40′	.5233	9.7187	40′	.6011	9.7790
50′	.4463	9.6496	50′	.5247	9.7199	50′	.6025	9.7800
84° 0′	.4477	9.6510	**93° 0′**	.5262	9.7211	**102° 0′**	.6040	9.7810
10′	.4492	9.6524	10′	.5276	9.7223	10′	.6054	9.7820
20′	.4506	9.6538	20′	.5291	9.7235	20′	.6068	9.7830
30′	.4521	9.6552	30′	.5305	9.7247	30′	.6082	9.7841
40′	.4535	9.6566	40′	.5320	9.7259	40′	.6096	9.7851
50′	.4550	9.6580	50′	.5334	9.7271	50′	.6111	9.7861
85° 0′	.4564	9.6594	**94° 0′**	.5349	9.7283	**103° 0′**	.6125	9.7871
10′	.4579	9.6607	10′	.5363	9.7294	10′	.6139	9.7881
20′	.4593	9.6621	20′	.5378	9.7306	20′	.6153	9.7891
30′	.4608	9.6635	30′	.5392	9.7318	30′	.6167	9.7901
40′	.4622	9.6648	40′	.5407	9.7329	40′	.6181	9.7911
50′	.4637	9.6662	50′	.5421	9.7341	50′	.6195	9.7921
86° 0′	.4651	9.6676	**95° 0′**	.5436	9.7353	**104° 0′**	.6210	9.7931
10′	.4666	9.6689	10′	.5450	9.7364	10′	.6224	9.7940
20′	.4680	9.6703	20′	.5465	9.7376	20′	.6238	9.7950
30′	.4695	9.6716	30′	.5479	9.7387	30′	.6252	9.7960
40′	.4709	9.6730	40′	.5494	9.7399	40′	.6266	9.7970
50′	.4724	9.6743	50′	.5508	9.7410	50′	.6280	9.7980
87° 0′	.4738	9.6756	**96° 0′**	.5523	9.7421	**105° 0′**	.6294	9.7989
10′	.4753	9.6770	10′	.5537	9.7433	10′	.6308	9.7999
20′	.4767	9.6783	20′	.5552	9.7444	20′	.6322	9.8009
30′	.4782	9.6796	30′	.5566	9.7455	30′	.6336	9.8018
40′	.4796	9.6809	40′	.5580	9.7467	40′	.6350	9.8028
50′	.4811	9.6822	50′	.5595	9.7478	50′	.6364	9.8037
88° 0′	.4826	9.6835	**97° 0′**	.5609	9.7489	**106° 0′**	.6378	9.8047
10′	.4840	9.6848	10′	.5624	9.7500	10′	.6392	9.8056
20′	.4855	9.6862	20′	.5638	9.7511	20′	.6406	9.8066
30′	.4869	9.6875	30′	.5653	9.7523	30′	.6420	9.8075
40′	.4884	9.6887	40′	.5667	9.7534	40′	.6434	9.8085
50′	.4898	9.6900	50′	.5682	9.7545	50′	.6448	9.8094
89° 0′	.4913	9.6913	**98° 0′**	.5696	9.7556	**107° 0′**	.6462	9.8104
10′	.4927	9.6926	10′	.5710	9.7567	10′	.6476	9.8113
20′	.4942	9.6939	20′	.5725	9.7577	20′	.6490	9.8122
30′	.4956	9.6952	30′	.5739	9.7588	30′	.6504	9.8131
40′	.4971	9.6964	40′	.5753	9.7599	40′	.6517	9.8141
50′	.4985	9.6977	50′	.5768	9.7610	50′	.6531	9.8150
90° 0′	.5000	9.6990	**99° 0′**	.5782	9.7621	**108° 0′**	.6545	9.8159
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
108° 0′	.6545	9.8159	**117° 0′**	.7270	9.8615	**126° 0′**	.7939	9.8998
10′	.6559	9.8168	10′	.7283	9.8623	10′	.7951	9.9004
20′	.6573	9.8177	20′	.7296	9.8631	20′	.7962	9.9010
30′	.6587	9.8187	30′	.7309	9.8638	30′	.7974	9.9017
40′	.6600	9.8196	40′	.7322	9.8646	40′	.7986	9.9023
50′	.6614	9.8205	50′	.7335	9.8654	50′	.7997	9.9030
109° 0′	.6628	9.8214	**118° 0′**	.7347	9.8661	**127° 0′**	.8009	9.9036
10′	.6642	9.8223	10′	.7360	9.8669	10′	.8021	9.9042
20′	.6655	9.8232	20′	.7373	9.8676	20′	.8032	9.9048
30′	.6669	9.8241	30′	.7386	9.8684	30′	.8044	9.9055
40′	.6683	9.8250	40′	.7399	9.8691	40′	.8055	9.9061
50′	.6696	9.8258	50′	.7411	9.8699	50′	.8067	9.9067
110° 0′	.6710	9.8267	**119° 0′**	.7424	9.8706	**128° 0′**	.8078	9.9073
10′	.6724	9.8276	10′	.7437	9.8714	10′	.8090	9.9079
20′	.6737	9.8285	20′	.7449	9.8721	20′	.8101	9.9085
30′	.6751	9.8294	30′	.7462	9.8729	30′	.8113	9.9092
40′	.6765	9.8302	40′	.7475	9.8736	40′	.8124	9.9098
50′	.6778	9.8311	50′	.7487	9.8743	50′	.8135	9.9104
111° 0′	.6792	9.8320	**120° 0′**	.7500	9.8751	**129° 0′**	.8147	9.9110
10′	.6805	9.8329	10′	.7513	9.8758	10′	.8158	9.9116
20′	.6819	9.8337	20′	.7525	9.8765	20′	.8169	9.9122
30′	.6833	9.8346	30′	.7538	9.8772	30′	.8180	9.9128
40′	.6846	9.8354	40′	.7550	9.8780	40′	.8192	9.9134
50′	.6860	9.8363	50′	.7563	9.8787	50′	.8203	9.9140
112° 0′	.6873	9.8371	**121° 0′**	.7575	9.8794	**130° 0′**	.8214	9.9146
10′	.6887	9.8380	10′	.7588	9.8801	10′	.8225	9.9151
20′	.6900	9.8388	20′	.7600	9.8808	20′	.8236	9.9157
30′	.6913	9.8397	30′	.7612	9.8815	30′	.8247	9.9163
40′	.6927	9.8405	40′	.7625	9.8822	40′	.8258	9.9169
50′	.6940	9.8414	50′	.7637	9.8829	50′	.8269	9.9175
113° 0′	.6954	9.8422	**122° 0′**	.7650	9.8836	**131° 0′**	.8280	9.9180
10′	.6967	9.8430	10′	.7662	9.8843	10′	.8291	9.9186
20′	.6980	9.8439	20′	.7674	9.8850	20′	.8302	9.9192
30′	.6994	9.8447	30′	.7686	9.8857	30′	.8313	9.9198
40′	.7007	9.8455	40′	.7699	9.8864	40′	.8324	9.9203
50′	.7020	9.8464	50′	.7711	9.8871	50′	.8335	9.9209
114° 0′	.7034	9.8472	**123° 0′**	.7723	9.8878	**132° 0′**	.8346	9.9215
10′	.7047	9.8480	10′	.7735	9.8885	10′	.8356	9.9220
20′	.7060	9.8488	20′	.7748	9.8892	20′	.8367	9.9226
30′	.7073	9.8496	30′	.7760	9.8898	30′	.8378	9.9231
40′	.7087	9.8504	40′	.7772	9.8905	40′	.8389	9.9237
50′	.7100	9.8513	50′	.7784	9.8912	50′	.8399	9.9242
115° 0′	.7113	9.8521	**124° 0′**	.7796	9.8919	**133° 0′**	.8410	9.9248
10′	.7126	9.8529	10′	.7808	9.8925	10′	.8421	9.9253
20′	.7139	9.8537	20′	.7820	9.8932	20′	.8431	9.9259
30′	.7153	9.8545	30′	.7832	9.8939	30′	.8442	9.9264
40′	.7166	9.8553	40′	.7844	9.8945	40′	.8452	9.9270
50′	.7179	9.8561	50′	.7856	9.8952	50′	.8463	9.9275
116° 0′	.7192	9.8568	**125° 0′**	.7868	9.8959	**134° 0′**	.8473	9.9281
10′	.7205	9.8576	10′	.7880	9.8965	10′	.8484	9.9286
20′	.7218	9.8584	20′	.7892	9.8972	20′	.8494	9.9291
30′	.7231	9.8592	30′	.7904	9.8978	30′	.8505	9.9297
40′	.7244	9.8600	40′	.7915	9.8985	40′	.8515	9.9302
50′	.7257	9.8608	50′	.7927	9.8991	50′	.8525	9.9307
117° 0′	.7270	9.8615	**126° 0′**	.7939	9.8998	**135° 0′**	.8536	9.9312
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
135° 0′	.8536	9.9312	**144° 0′**	.9045	9.9564	**153° 0′**	.9455	9.9757
10′	.8546	9.9318	10′	.9054	9.9568	10′	.9462	9.9760
20′	.8556	9.9323	20′	.9062	9.9572	20′	.9468	9.9763
30′	.8566	9.9328	30′	.9071	9.9576	30′	.9475	9.9766
40′	.8576	9.9333	40′	.9079	9.9580	40′	.9481	9.9769
50′	.8587	9.9338	50′	.9087	9.9584	50′	.9488	9.9772
136° 0′	.8597	9.9343	**145° 0′**	.9096	9.9588	**154° 0′**	.9494	9.9774
10′	.8607	9.9348	10′	.9104	9.9592	10′	.9500	9.9777
20′	.8617	9.9353	20′	.9112	9.9596	20′	.9507	9.9780
30′	.8627	9.9359	30′	.9121	9.9600	30′	.9513	9.9783
40′	.8637	9.9364	40′	.9129	9.9604	40′	.9519	9.9786
50′	.8647	9.9369	50′	.9137	9.9608	50′	.9525	9.9789
137° 0′	.8657	9.9374	**146° 0′**	.9145	9.9612	**155° 0′**	.9532	9.9792
10′	.8667	9.9379	10′	.9153	9.9616	10′	.9538	9.9794
20′	.8677	9.9383	20′	.9161	9.9620	20′	.9544	9.9797
30′	.8686	9.9388	30′	.9169	9.9623	30′	.9550	9.9800
40′	.8696	9.9393	40′	.9177	9.9627	40′	.9556	9.9803
50′	.8706	9.9398	50′	.9185	9.9631	50′	.9562	9.9805
138° 0′	.8716	9.9403	**147° 0′**	.9193	9.9635	**156° 0′**	.9568	9.9808
10′	.8725	9.9408	10′	.9201	9.9638	10′	.9574	9.9811
20′	.8735	9.9413	20′	.9209	9.9642	20′	.9579	9.9813
30′	.8745	9.9417	30′	.9217	9.9646	30′	.9585	9.9816
40′	.8754	9.9422	40′	.9225	9.9650	40′	.9591	9.9819
50′	.8764	9.9427	50′	.9233	9.9653	50′	.9597	9.9821
139° 0′	.8774	9.9432	**148° 0′**	.9240	9.9657	**157° 0′**	.9603	9.9824
10′	.8783	9.9436	10′	.9248	9.9660	10′	.9608	9.9826
20′	.8793	9.9441	20′	.9256	9.9664	20′	.9614	9.9829
30′	.8802	9.9446	30′	.9263	9.9668	30′	.9619	9.9831
40′	.8811	9.9450	40′	.9271	9.9671	40′	.9625	9.9834
50′	.8821	9.9455	50′	.9278	9.9675	50′	.9630	9.9836
140° 0′	.8830	9.9460	**149° 0′**	.9286	9.9678	**158° 0′**	.9636	9.9839
10′	.8840	9.9464	10′	.9293	9.9682	10′	.9641	9.9841
20′	.8849	9.9469	20′	.9301	9.9685	20′	.9647	9.9844
30′	.8858	9.9473	30′	.9308	9.9689	30′	.9652	9.9846
40′	.8867	9.9478	40′	.9316	9.9692	40′	.9657	9.9849
50′	.8877	9.9482	50′	.9323	9.9695	50′	.9663	9.9851
141° 0′	.8886	9.9487	**150° 0′**	.9330	9.9699	**159° 0′**	.9668	9.9853
10′	.8895	9.9491	10′	.9337	9.9702	10′	.9673	9.9856
20′	.8904	9.9496	20′	.9345	9.9706	20′	.9678	9.9858
30′	.8913	9.9500	30′	.9352	9.9709	30′	.9683	9.9860
40′	.8922	9.9505	40′	.9359	9.9712	40′	.9688	9.9863
50′	.8931	9.9509	50′	.9366	9.9716	50′	.9693	9.9865
142° 0′	.8940	9.9513	**151° 0′**	.9373	9.9719	**160° 0′**	.9698	9.9867
10′	.8949	9.9518	10′	.9380	9.9722	10′	.9703	9.9869
20′	.8958	9.9522	20′	.9387	9.9725	20′	.9708	9.9871
30′	.8967	9.9526	30′	.9394	9.9729	30′	.9713	9.9874
40′	.8976	9.9531	40′	.9401	9.9732	40′	.9718	9.9876
50′	.8984	9.9535	50′	.9408	9.9735	50′	.9723	9.9878
143° 0′	.8993	9.9539	**152° 0′**	.9415	9.9738	**161° 0′**	.9728	9.9880
10′	.9002	9.9543	10′	.9422	9.9741	10′	.9732	9.9882
20′	.9011	9.9548	20′	.9428	9.9744	20′	.9737	9.9884
30′	.9019	9.9552	30′	.9435	9.9747	30′	.9742	9.9886
40′	.9028	9.9556	40′	.9442	9.9751	40′	.9746	9.9888
50′	.9037	9.9560	50′	.9448	9.9754	50′	.9751	9.9890
144° 0′	.9045	9.9564	**153° 0′**	.9455	9.9757	**162° 0′**	.9755	9.9892
	Nat.	Log.		Nat.	Log.		Nat.	Log.

	Nat.	Log.		Nat.	Log.		Nat.	Log.
162° 0′	.9755	9.9892	**168° 0′**	.9891	9.9952	**174° 0′**	.9973	9.9988
10′	.9760	9.9894	10′	.9894	9.9954	10′	.9974	9.9989
20′	.9764	9.9896	20′	.9897	9.9955	20′	.9976	9.9989
30′	.9769	9.9898	30′	.9900	9.9956	30′	.9977	9.9990
40′	.9773	9.9900	40′	.9903	9.9957	40′	.9978	9.9991
50′	.9777	9.9902	50′	.9905	9.9959	50′	.9980	9.9991
163° 0′	.9782	9.9904	**169° 0′**	.9908	9.9960	**175° 0′**	.9981	9.9992
10′	.9786	9.9906	10′	.9911	9.9961	10′	.9982	9.9992
20′	.9790	9.9908	20′	.9914	9.9962	20′	.9983	9.9993
30′	.9794	9.9910	30′	.9916	9.9963	30′	.9985	9.9993
40′	.9798	9.9911	40′	.9919	9.9965	40′	.9986	9.9994
50′	.9802	9.9913	50′	.9921	9.9966	50′	.9987	9.9994
164° 0′	.9806	9.9915	**170° 0′**	.9924	9.9967	**176° 0′**	.9988	9.9995
10′	.9810	9.9917	10′	.9927	9.9968	10′	.9989	9.9995
20′	.9814	9.9919	20′	.9929	9.9969	20′	.9990	9.9996
30′	.9818	9.9920	30′	.9931	9.9970	30′	.9991	9.9996
40′	.9822	9.9922	40′	.9934	9.9971	40′	.9992	9.9996
50′	.9826	9.9924	50′	.9936	9.9972	50′	.9992	9.9997
165° 0′	.9830	9.9925	**171° 0′**	.9938	9.9973	**177° 0′**	.9993	9.9997
10′	.9833	9.9927	10′	.9941	9.9974	10′	.9994	9.9997
20′	.9837	9.9929	20′	.9943	9.9975	20′	.9995	9.9998
30′	.9841	9.9930	30′	.9945	9.9976	30′	.9995	9.9998
40′	.9844	9.9932	40′	.9947	9.9977	40′	.9996	9.9998
50′	.9848	9.9933	50′	.9949	9.9978	50′	.9996	9.9998
166° 0′	.9851	9.9935	**172° 0′**	.9951	9.9979	**178° 0′**	.9997	9.9999
10′	.9855	9.9937	10′	.9953	9.9980	10′	.9997	9.9999
20′	.9858	9.9938	20′	.9955	9.9981	20′	.9998	9.9999
30′	.9862	9.9940	30′	.9957	9.9981	30′	.9998	9.9999
40′	.9865	9.9941	40′	.9959	9.9982	40′	.9999	9.9999
50′	.9869	9.9943	50′	.9961	9.9983	50′	.9999	0.0000
167° 0′	.9872	9.9944	**173° 0′**	.9963	9.9984	**179° 0′**	.9999	0.0000
10′	.9875	9.9945	10′	.9964	9.9984	10′	.9999	0.0000
20′	.9878	9.9947	20′	.9966	9.9985	20′	1.0000	0.0000
30′	.9881	9.9948	30′	.9968	9.9986	30′	1.0000	0.0000
40′	.9885	9.9950	40′	.9969	9.9987	40′	1.0000	0.0000
50′	.9888	9.9951	50′	.9971	9.9987	50′	1.0000	0.0000
168° 0′	.9891	9.9952	**174° 0′**	.9973	9.9988			
	Nat.	Log.		Nat.	Log.		Nat.	Log.

Mils	Sin	Cos	Tan	Cot	Mils
0	———	10.00000	———	———	**1600**
1	6.99200	10.00000	6.99200	3.00800	1599
2	7.29303	10.00000	7.29303	2.70697	1598
3	7.46912	10.00000	7.46912	2.53088	1597
4	7.59406	10.00000	7.59406	2.40594	1596
5	7.69097	9.99999	7.69097	2.30903	1595
6	7.77015	9.99999	7.77016	2.22984	1594
7	7.83709	9.99999	7.83710	2.16290	1593
8	7.89509	9.99999	7.89510	2.10490	1592
9	7.94624	9.99998	7.94625	2.05375	1591
10	7.99199	9.99998	7.99201	2.00799	**1590**
11	8.03338	9.99997	8.03340	1.96660	1589
12	8.07117	9.99997	8.07120	1.92880	1588
13	8.10593	9.99996	8.10597	1.89403	1587
14	8.13811	9.99996	8.13816	1.86184	1586
15	8.16808	9.99995	8.16812	1.83188	1585
16	8.19610	9.99995	8.19616	1.80384	1584
17	8.22243	9.99994	8.22249	1.77751	1583
18	8.24725	9.99993	8.24732	1.75268	1582
19	8.27073	9.99992	8.27080	1.72920	1581
20	8.29300	9.99992	8.29309	1.70691	**1580**
21	8.31419	9.99991	8.31428	1.68572	1579
22	8.33439	9.99990	8.33449	1.66551	1578
23	8.35369	9.99989	8.35380	1.64620	1577
24	8.37217	9.99988	8.37229	1.62771	1576
25	8.38990	9.99987	8.39003	1.60997	1575
26	8.40693	9.99986	8.40707	1.59293	1574
27	8.42331	9.99985	8.42347	1.57653	1573
28	8.43910	9.99984	8.43927	1.56073	1572
29	8.45434	9.99982	8.45452	1.54548	1571
30	8.46906	9.99981	8.46925	1.53075	**1570**
31	8.48329	9.99980	8.48350	1.51650	1569
32	8.49708	9.99979	8.49729	1.50271	1568
33	8.51043	9.99977	8.51067	1.48933	1567
34	8.52340	9.99976	8.52364	1.47636	1566
35	8.53598	9.99974	8.53623	1.46376	1565
36	8.54821	9.99973	8.54848	1.45152	1564
37	8.56011	9.99971	8.56039	1.43961	1563
38	8.57168	9.99970	8.57199	1.42801	1562
39	8.58296	9.99968	8.58328	1.41672	1561
40	8.59395	9.99967	8.59428	1.40572	**1560**
41	8.60467	9.99965	8.60502	1.39498	1559
42	8.61513	9.99963	8.61550	1.38450	1558
43	8.62533	9.99961	8.62573	1.37427	1557
44	8.63532	9.99959	8.63572	1.36428	1556
45	8.64507	9.99958	8.64550	1.35450	1555
46	8.65461	9.99956	8.65505	1.34495	1554
47	8.66394	9.99954	8.66441	1.33559	1553
48	8.67308	9.99952	8.67356	1.32644	1552
49	8.68203	9.99950	8.68253	1.31747	1551
50	8.69080	9.99948	8.69132	1.30868	**1550**
51	8.69939	9.99946	8.69993	1.30007	1549
52	8.70781	9.99943	8.70838	1.29162	1548
53	8.71608	9.99941	8.71667	1.28333	1547
54	8.72419	9.99939	8.72480	1.27520	1546
55	8.73215	9.99937	8.73278	1.26722	1545
56	8.73997	9.99934	8.74063	1.25937	1544
57	8.74765	9.99932	8.74833	1.25167	1543
58	8.75519	9.99930	8.75590	1.24410	1542
59	8.76261	9.99927	8.76334	1.23666	1541
60	8.76990	9.99925	8.77065	1.22935	**1540**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
60	8.76990	9.99925	8.77065	1.22935	**1540**
61	8.77707	9.99922	8.77785	1.22215	1539
62	8.78412	9.99919	8.78493	1.21507	1538
63	8.79106	9.99917	8.79189	1.20811	1537
64	8.79789	9.99914	8.79875	1.20125	1536
65	8.80462	9.99912	8.80550	1.19450	1535
66	8.81124	9.99909	8.81215	1.18785	1534
67	8.81776	9.99906	8.81870	1.18130	1533
68	8.82419	9.99903	8.82515	1.17485	1532
69	8.83052	9.99900	8.83151	1.16849	1531
70	8.83676	9.99897	8.83778	1.16222	**1530**
71	8.84291	9.99894	8.84396	1.15604	1529
72	8.84897	9.99891	8.85006	1.14994	1528
73	8.85495	9.99888	8.85607	1.14393	1527
74	8.86085	9.99885	8.86200	1.13800	1526
75	8.86667	9.99882	8.86785	1.13215	1525
76	8.87241	9.99879	8.87362	1.12638	1524
77	8.87808	9.99876	8.87932	1.12068	1523
78	8.88367	9.99873	8.88494	1.11506	1522
79	8.88919	9.99869	8.89050	1.10950	1521
80	8.89464	9.99866	8.89598	1.10402	**1520**
81	8.90003	9.99863	8.90140	1.09860	1519
82	8.90534	9.99859	8.90675	1.09325	1518
83	8.91060	9.99856	8.91204	1.08796	1517
84	8.91579	9.99852	8.91727	1.08273	1516
85	8.92091	9.99849	8.92243	1.07757	1515
86	8.92598	9.99845	8.92753	1.07247	1514
87	8.93099	9.99841	8.93258	1.06742	1513
88	8.93594	9.99838	8.93757	1.06244	1512
89	8.94084	9.99834	8.94250	1.05750	1511
90	8.94568	9.99830	8.94737	1.05263	**1510**
91	8.95046	9.99826	8.95220	1.04780	1509
92	8.95520	9.99823	8.95697	1.04303	1508
93	8.95988	9.99819	8.96169	1.03831	1507
94	8.96451	9.99815	8.96636	1.03364	1506
95	8.96909	9.99811	8.97099	1.02901	1505
96	8.97363	9.99807	8.97556	1.02444	1504
97	8.97812	9.99803	8.98009	1.01991	1503
98	8.98256	9.99799	8.98457	1.01543	1502
99	8.98695	9.99795	8.98901	1.01099	1501
100	8.99130	9.99790	8.99340	1.00660	**1500**
101	8.99561	9.99786	8.99775	1.00225	1499
102	8.99987	9.99782	9.00206	0.99794	1498
103	9.00410	9.99778	9.00632	0.99368	1497
104	9.00828	9.99773	9.01055	0.98945	1496
105	9.01242	9.99769	9.01473	0.98527	1495
106	9.01652	9.99764	9.01888	0.98112	1494
107	9.02058	9.99760	9.02299	0.97701	1493
108	9.02461	9.99755	9.02706	0.97294	1492
109	9.02860	9.99751	9.03109	0.96891	1491
110	9.03255	9.99746	9.03509	0.96491	**1490**
111	9.03646	9.99742	9.03905	0.96095	1489
112	9.04034	9.99737	9.04297	0.95703	1488
113	9.04419	9.99732	9.04687	0.95313	1487
114	9.04800	9.99727	9.05072	0.94928	1486
115	9.05177	9.99723	9.05455	0.94545	1485
116	9.05552	9.99718	9.05834	0.94166	1484
117	9.05923	9.99713	9.06210	0.93790	1483
118	9.06291	9.99708	9.06583	0.93417	1482
119	9.06656	9.99703	9.06953	0.93047	1481
120	9.07018	9.99698	9.07320	0.92680	**1480**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
120	9.07018	9.99698	9.07320	0.92680	**1480**
121	9.07376	9.99693	9.07683	0.92317	1479
122	9.07732	9.99688	9.08044	0.91956	1478
123	9.08085	9.99683	9.08402	0.91598	1477
124	9.08435	9.99677	9.08757	0.91243	1476
125	9.08782	9.99672	9.09110	0.90890	1475
126	9.09126	9.99667	9.09459	0.90541	1474
127	9.09468	9.99662	9.09806	0.90194	1473
128	9.09807	9.99656	9.10150	0.89850	1472
129	9.10143	9.99651	9.10492	0.89508	1471
130	9.10476	9.99645	9.10831	0.89169	**1470**
131	9.10807	9.99640	9.11168	0.88832	1469
132	9.11136	9.99634	9.11501	0.88499	1468
133	9.11462	9.99629	9.11833	0.88167	1467
134	9.11785	9.99623	9.12162	0.87838	1466
135	9.12106	9.99617	9.12489	0.87511	1465
136	9.12425	9.99612	9.12813	0.87187	1464
137	9.12741	9.99606	9.13135	0.86865	1463
138	9.13055	9.99600	9.13455	0.86545	1462
139	9.13367	9.99594	9.13772	0.86228	1461
140	9.13676	9.99588	9.14087	0.85913	**1460**
141	9.13983	9.99583	9.14401	0.85599	1459
142	9.14288	9.99577	9.14711	0.85289	1458
143	9.14591	9.99571	9.15020	0.84980	1457
144	9.14891	9.99565	9.15327	0.84673	1456
145	9.15190	9.99558	9.15632	0.84368	1455
146	9.15486	9.99552	9.15934	0.84066	1454
147	9.15781	9.99546	9.16235	0.83765	1453
148	9.16073	9.99540	9.16533	0.83467	1452
149	9.16364	9.99534	9.16830	0.83170	1451
150	9.16652	9.99527	9.17125	0.82875	**1450**
151	9.16938	9.99521	9.17417	0.82583	1449
152	9.17223	9.99515	9.17708	0.82292	1448
153	9.17506	9.99508	9.17997	0.82003	1447
154	9.17786	9.99502	9.18285	0.81715	1446
155	9.18065	9.99495	9.18570	0.81430	1445
156	9.18343	9.99489	9.18854	0.81146	1444
157	9.18618	9.99482	9.19136	0.80864	1443
158	9.18891	9.99475	9.19416	0.80584	1442
159	9.19163	9.99469	9.19694	0.80306	1441
160	9.19433	9.99462	9.19971	0.80029	**1440**
161	9.19702	9.99455	9.20246	0.79754	1439
162	9.19968	9.99448	9.20520	0.79480	1438
163	9.20233	9.99442	9.20792	0.79208	1437
164	9.20497	9.99435	9.21062	0.78938	1436
165	9.20758	9.99428	9.21331	0.78669	1435
166	9.21018	9.99421	9.21598	0.78402	1434
167	9.21277	9.99414	9.21863	0.78137	1433
168	9.21534	9.99407	9.22127	0.77873	1432
169	9.21789	9.99399	9.22390	0.77610	1431
170	9.22043	9.99392	9.22651	0.77349	**1430**
171	9.22295	9.99385	9.22910	0.77090	1429
172	9.22546	9.99378	9.23168	0.76832	1428
173	9.22796	9.99371	9.23425	0.76575	1427
174	9.23043	9.99363	9.23680	0.76320	1426
175	9.23290	9.99356	9.23934	0.76066	1425
176	9.23535	9.99348	9.24186	0.75814	1424
177	9.23779	9.99341	9.24438	0.75562	1423
178	9.24021	9.99333	9.24687	0.75313	1422
179	9.24262	9.99326	9.24936	0.75064	1421
180	9.24501	9.99318	9.25183	0.74817	**1420**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
180	9.24501	9.99318	9.25183	0.74817	**1420**
181	9.24739	9.99311	9.25428	0.74572	1419
182	9.24976	9.99303	9.25673	0.74327	1418
183	9.25211	9.99295	9.25916	0.74084	1417
184	9.25445	9.99288	9.26158	0.73842	1416
185	9.25678	9.99280	9.26398	0.73602	1415
186	9.25910	9.99272	9.26638	0.73362	1414
187	9.26140	9.99264	9.26876	0.73124	1413
188	9.26369	9.99256	9.27113	0.72887	1412
189	9.26597	9.99248	9.27349	0.72651	1411
190	9.26823	9.99240	9.27583	0.72417	**1410**
191	9.27049	9.99232	9.27817	0.72183	1409
192	9.27273	9.99224	9.28049	0.71951	1408
193	9.27496	9.99216	9.28280	0.71720	1407
194	9.27717	9.99207	9.28510	0.71490	1406
195	9.27938	9.99199	9.28739	0.71261	1405
196	9.28157	9.99191	9.28966	0.71034	1404
197	9.28376	9.99183	9.29193	0.70807	1403
198	9.28593	9.99174	9.29418	0.70582	1402
199	9.28809	9.99166	9.29643	0.70357	1401
200	9.29024	9.99157	9.29866	0.70134	**1400**
201	9.29237	9.99149	9.30088	0.69912	1399
202	9.29450	9.99140	9.30310	0.69690	1398
203	9.29662	9.99132	9.30530	0.69470	1397
204	9.29872	9.99123	9.30749	0.69251	1396
205	9.30082	9.99114	9.30967	0.69033	1395
206	9.30290	9.99106	9.31185	0.68815	1394
207	9.30498	9.99097	9.31401	0.68599	1393
208	9.30704	9.99088	9.31616	0.68384	1392
209	9.30909	9.99079	9.31830	0.68170	1391
210	9.31114	9.99070	9.32043	0.67957	**1390**
211	9.31317	9.99061	9.32256	0.67744	1389
212	9.31520	9.99052	9.32467	0.67533	1388
213	9.31721	9.99043	9.32678	0.67322	1387
214	9.31921	9.99034	9.32887	0.67113	1386
215	9.32121	9.99025	9.33096	0.66904	1385
216	9.32319	9.99016	9.33303	0.66697	1384
217	9.32517	9.99007	9.33510	0.66490	1383
218	9.32714	9.98998	9.33716	0.66284	1382
219	9.32909	9.98988	9.33921	0.66079	1381
220	9.33104	9.98979	9.34125	0.65875	**1380**
221	9.33298	9.98970	9.34328	0.65672	1379
222	9.33491	9.98960	9.34531	0.65469	1378
223	9.33683	9.98951	9.34732	0.65268	1377
224	9.33874	9.98941	9.34933	0.65067	1376
225	9.34064	9.98932	9.35133	0.64867	1375
226	9.34254	9.98922	9.35332	0.64668	1374
227	9.34442	9.98912	9.35530	0.64470	1373
228	9.34630	9.98903	9.35727	0.64273	1372
229	9.34817	9.98893	9.35924	0.64076	1371
230	9.35003	9.98883	9.36120	0.63880	**1370**
231	9.35188	9.98873	9.36315	0.63685	1369
232	9.35373	9.98864	9.36509	0.63491	1368
233	9.35556	9.98854	9.36702	0.63298	1367
234	9.35739	9.98844	9.36895	0.63105	1366
235	9.35921	9.98834	9.37087	0.62913	1365
236	9.36102	9.98824	9.37278	0.62722	1364
237	9.36282	9.98814	9.37469	0.62531	1363
238	9.36462	9.98804	9.37658	0.62342	1362
239	9.36641	9.98793	9.37847	0.62153	1361
240	9.36819	9.98783	9.38035	0.61965	**1360**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
240	9.36819	9.98783	9.38035	0.61965	**1360**
241	9.36996	9.98773	9.38223	0.61777	1359
242	9.37172	9.98763	9.38410	0.61590	1358
243	9.37348	9.98752	9.38596	0.61404	1357
244	9.37523	9.98742	9.38781	0.61219	1356
245	9.37697	9.98731	9.38966	0.61034	1355
246	9.37870	9.98721	9.39150	0.60850	1354
247	9.38043	9.98710	9.39333	0.60667	1353
248	9.38215	9.98700	9.39515	0.60485	1352
249	9.38387	9.98689	9.39697	0.60303	1351
250	9.38557	9.98679	9.39879	0.60121	**1350**
251	9.38727	9.98668	9.40059	0.59941	1349
252	9.38896	9.98657	9.40239	0.59761	1348
253	9.39065	9.98646	9.40418	0.59582	1347
254	9.39232	9.98635	9.40597	0.59403	1346
255	9.39399	9.98625	9.40775	0.59225	1345
256	9.39566	9.98614	9.40952	0.59048	1344
257	9.39732	9.98603	9.41129	0.58871	1343
258	9.39897	9.98592	9.41305	0.58695	1342
259	9.40061	9.98581	9.41480	0.58520	1341
260	9.40225	9.98570	9.41655	0.58345	**1340**
261	9.40388	9.98558	9.41829	0.58171	1339
262	9.40551	9.98547	9.42003	0.57997	1338
263	9.40712	9.98536	9.42176	0.57824	1337
264	9.40873	9.98525	9.42348	0.57652	1336
265	9.41034	9.98513	9.42520	0.57480	1335
266	9.41193	9.98502	9.42691	0.57309	1334
267	9.41353	9.98491	9.42862	0.57138	1333
268	9.41511	9.98479	9.43032	0.56968	1332
269	9.41669	9.98468	9.43202	0.56798	1331
270	9.41827	9.98456	9.43371	0.56629	**1330**
271	9.41983	9.98444	9.43539	0.56461	1329
272	9.42140	9.98433	9.43707	0.56293	1328
273	9.42295	9.98421	9.43874	0.56126	1327
274	9.42450	9.98409	9.44041	0.55959	1326
275	9.42604	9.98398	9.44207	0.55793	1325
276	9.42758	9.98386	9.44372	0.55628	1324
277	9.42911	9.98374	9.44537	0.55463	1323
278	9.43064	9.98362	9.44702	0.55298	1322
279	9.43216	9.98350	9.44866	0.55134	1321
280	9.43367	9.98338	9.45029	0.54971	**1320**
281	9.43518	9.98326	9.45192	0.54808	1319
282	9.43669	9.98314	9.45355	0.54645	1318
283	9.43818	9.98302	9.45517	0.54483	1317
284	9.43968	9.98290	9.45678	0.54322	1316
285	9.44116	9.98277	9.45839	0.54161	1315
286	9.44264	9.98265	9.45999	0.54001	1314
287	9.44412	9.98253	9.46159	9.53841	1313
288	9.44559	9.98240	9.46319	0.53681	1312
289	9.44706	9.98228	9.46478	0.53522	1311
290	9.44851	9.98216	9.46636	0.53364	**1310**
291	9.44997	9.98203	9.46794	0.53206	1309
292	9.45142	9.98190	9.46951	0.53049	1308
293	9.45286	9.98178	9.47108	0.52892	1307
294	9.45430	9.98165	9.47265	0.52735	1306
295	9.45573	9.98153	9.47421	0.52579	1305
296	9.45716	9.98140	9.47576	0.52424	1304
297	9.45858	9.98127	9.47731	0.52269	1303
298	9.46000	9.98114	9.47886	0.52114	1302
299	9.46142	9.98101	9.48040	0.51960	1301
300	9.46282	9.98088	9.48194	0.51806	**1300**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
300	9.46282	9.98088	9.48194	0.51806	**1300**
301	9.46423	9.98076	9.48347	0.51653	1299
302	9.46563	9.98063	9.48500	0.51500	1298
303	9.46702	9.98050	9.48652	0.51348	1297
304	9.46841	9.98036	9.48804	0.51196	1296
305	9.46979	9.98023	9.48956	0.51044	1295
306	9.47117	9.98010	9.49107	0.50893	1294
307	9.47254	9.97997	9.49257	0.50743	1293
308	9.47391	9.97984	9.49408	0.50592	1292
309	9.47528	9.97970	9.49557	0.50443	1291
310	9.47664	9.97957	9.49707	0.50293	**1290**
311	9.47799	9.97943	9.49856	0.50144	1289
312	9.47934	9.97930	9.50004	0.49996	1288
313	9.48069	9.97916	9.50152	0.49848	1287
314	9.48203	9.97903	9.50300	0.49700	1286
315	9.48337	9.97889	9.50447	0.49553	1285
316	9.48470	9.97876	9.50594	0.49406	1284
317	9.48603	9.97862	9.50741	0.49259	1283
318	9.48735	9.97848	9.50887	0.49113	1282
319	9.48867	9.97834	9.51032	0.48968	1281
320	9.48998	9.97821	9.51178	0.48822	**1280**
321	9.49129	9.97807	9.51322	0.48678	1279
322	9.49260	9.97793	9.51467	0.48533	1278
323	9.49390	9.97779	9.51611	0.48389	1277
324	9.49520	9.97765	9.51755	0.48245	1276
325	9.49649	9.97751	9.51898	0.48102	1275
326	9.49778	9.97737	9.52041	0.47959	1274
327	9.49906	9.97722	9.52184	0.47816	1273
328	9.50034	9.97708	9.52326	0.47674	1272
329	9.50162	9.97694	9.52468	0.47532	1271
330	9.50289	9.97680	9.52609	9.47391	**1270**
331	9.50416	9.97665	9.52750	0.47250	1269
332	9.50542	9.97651	9.52891	0.47109	1268
333	9.50668	9.97637	9.53031	0.46969	1267
334	9.50794	9.97622	9.53171	0.46829	1266
335	9.50919	9.97608	9.53311	0.46689	1265
336	9.51043	9.97593	9.53450	0.46550	1264
337	9.51168	9.97578	9.53589	0.46411	1263
338	9.51292	9.97564	9.53728	0.46272	1262
339	9.51415	9.97549	9.53866	0.46134	1261
340	9.51538	9.97534	9.54004	0.45996	**1260**
341	9.51661	9.97519	9.54142	0.45858	1259
342	9.51784	9.97505	9.54279	0.45721	1258
343	9.51906	9.97490	9.54416	0.45584	1257
344	9.52027	9.97475	9.54552	0.45448	1256
345	9.52148	9.97460	9.54689	9.45311	1255
346	9.52269	9.97445	9.54824	0.45176	1254
347	9.52390	9.97430	9.54960	0.45040	1253
348	9.52510	9.97414	9.55095	0.44905	1252
349	9.52629	9.97399	9.55230	0.44770	1251
350	9.52749	9.97384	9.55365	0.44635	**1250**
351	9.52868	9.97369	9.55499	0.44501	1249
352	9.52986	9.97353	9.55633	0.44367	1248
353	9.53105	9.97338	9.55767	0.44233	1247
354	9.53223	9.97323	9.55900	0.44100	1246
355	9.53340	9.97307	9.56033	0.43967	1245
356	9.53457	9.97292	9.56166	0.43834	1244
357	9.53574	9.97276	9.56298	0.43702	1243
358	9.53690	9.97261	9.56430	0.43570	1242
359	9.53807	9.97245	9.56562	0.43438	1241
360	9.53922	9.97229	9.56693	0.43307	**1240**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
360	9.53922	9.97229	9.56693	0.43307	**1240**
361	9.54038	9.97213	9.56824	0.43176	1239
362	9.54153	9.97198	9.56955	0.43045	1238
363	9.54267	9.97182	9.57086	0.42914	1237
364	9.54382	9.97166	9.57216	0.42784	1236
365	9.54496	9.97150	9.57346	0.42654	1235
366	9.54610	9.97134	9.57476	0.42524	1234
367	9.54723	9.97118	9.57605	0.42395	1233
368	9.54836	9.97102	9.57734	0.42266	1232
369	9.54949	9.97086	9.57863	0.42137	1231
370	9.55061	9.97069	9.57991	0.42009	**1230**
371	9.55173	9.97053	9.58120	0.41880	1229
372	9.55285	9.97037	9.58248	0.41752	1228
373	9.55396	9.97021	9.58375	0.41625	1227
374	9.55507	9.97004	9.58503	0.41497	1226
375	9.55618	9.96988	9.58630	0.41370	1225
376	9.55728	9.96971	9.58757	0.41243	1224
377	9.55838	9.96955	9.58883	0.41117	1223
378	9.55948	9.96938	9.59009	0.40991	1222
379	9.56057	9.96922	9.59135	0.40865	1221
380	9.56166	9.96905	9.59261	0.40739	**1220**
381	9.56275	9.96888	9.59387	0.40613	1219
382	9.56383	9.96872	9.59512	0.40488	1218
383	9.56492	9.96855	9.59637	0.40363	1217
384	9.56599	9.96838	9.59762	0.40238	1216
385	9.56707	9.96821	9.59886	0.40114	1215
386	9.56814	9.96804	9.60010	0.39990	1214
387	9.56921	9.96787	9.60134	9.39866	1213
388	9.57028	9.96770	9.60258	0.39742	1212
389	9.57134	9.96753	9.60381	0.39619	1211
390	9.57240	9.96736	9.60504	0.39496	**1210**
391	9.57346	9.96719	9.60627	9.39373	1209
392	9.57451	9.96701	9.60750	0.39250	1208
393	9.57556	9.96684	9.60872	0.39128	1207
394	9.57661	9.96667	9.60995	0.39005	1206
395	9.57766	9.96649	9.61116	0.38884	1205
396	9.57870	9.96632	9.61238	0.38762	1204
397	9.57974	9.96614	9.61360	0.38640	1203
398	9.58078	9.96597	9.61481	0.38519	1202
399	9.58181	9.96579	9.61602	0.38398	1201
400	9.58284	9.96562	9.61722	0.38278	**1200**
401	9.58387	9.96544	9.61843	0.38157	1199
402	9.58489	9.96526	9.61963	0.38037	1198
403	9.58591	9.96508	9.62083	0.37917	1197
404	9.58693	9.96490	9.62203	0.37797	1196
405	9.58795	9.96473	9.62322	0.37678	1195
406	9.58896	9.96455	9.62442	0.37558	1194
407	9.58998	9.96437	9.62561	0.37439	1193
408	9.59098	9.96419	9.62680	0.37320	1192
409	9.59199	9.96401	9.62798	0.37202	1191
410	9.59299	9.96382	9.62917	0.37083	**1190**
411	9.59399	9.96364	9.63035	0.36965	1189
412	9.59499	9.96346	9.63153	0.36847	1188
413	9.59598	9.96328	9.63271	0.36729	1187
414	9.59698	9.96310	0.63388	0.36612	1186
415	9.59797	9.96291	9.63505	0.36495	1185
416	9.59895	9.96273	9.63623	0.36377	1184
417	9.59994	9.96254	9.63739	0.36261	1183
418	9.60092	9.96236	9.63856	0.36144	1182
419	9.60190	9.96217	9.63973	0.36027	1181
420	9.60287	9.96198	9.64089	0.35911	**1180**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
420	9.60287	9.96198	9.64089	0.35911	**1180**
421	9.60385	9.96180	9.64205	0.35795	1179
422	9.60482	9.96161	9.64321	0.35679	1178
423	9.60578	9.96142	9.64436	0.35564	1177
424	9.60675	9.96123	9.64552	0.35448	1176
425	9.60771	9.96105	9.64667	0.35333	1175
426	9.60867	9.96086	9.64782	0.35218	1174
427	9.60963	9.96067	9.64897	0.35103	1173
428	9.61059	9.96048	9.65011	0.34989	1172
429	9.61154	9.96029	9.65126	0.34874	1171
430	9.61249	9.96009	9.65240	0.34760	**1170**
431	9.61344	9.95990	9.65354	0.34646	1169
432	9.61438	9.95971	9.65467	0.34533	1168
433	9.61533	9.95952	9.65581	0.34419	1167
434	9.61627	9.95932	9.65694	0.34306	1166
435	9.61721	9.95913	9.65808	0.34192	1165
436	9.61814	9.95894	9.65921	0.34079	1164
437	9.61908	9.95874	9.66033	0.33967	1163
438	9.62001	9.95855	9.66146	0.33854	1162
439	9.62094	9.95835	9.66258	0.33742	1161
440	9.62186	9.95815	9.66371	0.33629	**1160**
441	9.62278	9.95796	9.66483	0.33517	1159
442	9.62371	9.95776	9.66595	0.33405	1158
443	9.62463	9.95756	9.66706	0.33294	1157
444	9.62554	9.95736	9.66818	0.33182	1156
445	9.62646	9.95717	9.66929	0.33071	1155
446	9.62737	9.95697	9.67040	0.32960	1154
447	9.62828	9.95677	9.67151	0.32849	1153
448	9.62918	9.95657	9.67262	0.32738	1152
449	9.63009	9.95636	9.67372	0.32628	1151
450	9.63099	9.95616	9.67483	0.32517	**1150**
451	9.63189	9.95596	9.67593	0.32407	1149
452	9.63279	9.95576	9.67703	0.32297	1148
453	9.63369	9.95556	9.67813	0.32187	1147
454	9.63458	9.95535	9.67923	0.32077	1146
455	9.63547	9.95515	9.68032	0.31968	1145
456	9.63636	9.95494	9.68142	9.31858	1144
457	9.63725	9.95474	9.68251	0.31749	1143
458	9.63813	9.95453	9.68360	0.31640	1142
459	9.63901	9.95433	9.68469	0.31531	1141
460	9.63989	9.95412	9.68577	0.31423	**1140**
461	9.64077	9.95391	9.68686	0.31314	1139
462	9.64165	9.95371	9.68794	0.31206	1138
463	9.64252	9.95350	9.68902	0.31098	1137
464	9.64339	9.95329	9.69010	0.30990	1136
465	9.64426	9.95308	9.69118	0.30882	1135
466	9.64513	9.95287	9.69226	0.30774	1134
467	9.64599	9.95266	9.69333	0.30667	1133
468	9.64686	9.95245	9.69441	0.30559	1132
469	9.64772	9.95224	9.69548	0.30452	1131
470	9.64858	9.95203	9.69655	0.30345	**1130**
471	9.64943	9.95181	9.69762	0.30238	1129
472	9.65029	9.95160	9.69868	0.30132	1128
473	9.65114	9.95139	9.69975	0.30025	1127
474	9.65199	9.95117	9.70081	0.29919	1126
475	9.65284	9.95096	9.70188	0.29812	1125
476	9.65368	9.95075	9.70294	0.29706	1124
477	9.65453	9.95053	9.70400	0.29600	1123
478	9.65537	9.95031	9.70505	0.29495	1122
479	9.65621	9.95010	9.70611	0.29389	1121
480	9.65705	9.94988	9.70717	0.29283	**1120**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
480	9.65705	9.94988	9.70717	0.29283	**1120**
481	9.65788	9.94966	9.70822	0.29178	1119
482	9.65872	9.94945	9.70927	0.29073	1118
483	9.65955	9.94923	9.71032	0.28968	1117
484	9.66038	9.94901	9.71137	0.28863	1116
485	9.66121	9.94879	9.71242	0.28758	1115
486	9.66203	9.94857	9.71346	0.28654	1114
487	9.66286	9.94835	9.71451	0.28549	1113
488	9.66368	9.94813	9.71555	0.28445	1112
489	9.66450	9.94790	9.71659	0.28341	1111
490	9.66531	9.94768	9.71763	0.28237	**1110**
491	9.66613	9.94746	9.71867	0.28133	1109
492	9.66694	9.94724	9.71971	0.28029	1108
493	9.66776	9.94701	9.72074	0.27926	1107
494	9.66857	9.94679	9.72178	0.27822	1106
495	9.66937	9.94656	9.72281	0.27719	1105
496	9.67018	9.94634	9.72384	0.27616	1104
497	9.67099	9.94611	9.72487	0.27513	1103
498	9.67179	9.94588	9.72590	0.27410	1102
499	9.67259	9.94566	9.72693	0.27307	1101
500	9.67339	9.94543	9.72796	0.27204	**1100**
501	9.67418	9.94520	9.72898	0.27102	1099
502	9.67498	9.94497	9.73001	0.26999	1098
503	9.67577	9.94474	9.73103	0.26897	1097
504	9.67656	9.94451	9.73205	0.26795	1096
505	9.67735	9.94428	9.73307	0.26693	1095
506	9.67814	9.94405	9.73409	0.26591	1094
507	9.67892	9.94382	9.73510	0.26490	1093
508	9.67971	9.94359	9.73612	0.26388	1092
509	9.68049	9.94336	9.73713	0.26287	1091
510	9.68127	9.94312	9.73815	0.26185	**1090**
511	9.68205	9.94289	9.73916	0.26084	1089
512	9.68283	9.94266	9.74017	0.25983	1088
513	9.68360	9.94242	9.74118	0.25882	1087
514	9.68437	9.94219	9.74219	0.25781	1086
515	9.68514	9.94195	9.74319	0.25681	1085
516	9.68591	9.94171	9.74420	0.25580	1084
517	9.68668	9.94148	9.74520	0.25480	1083
518	9.68745	9.94124	9.74621	0.25379	1082
519	9.68821	9.94100	9.74721	0.25279	1081
520	9.68897	9.94076	9.74821	0.25179	**1080**
521	9.68973	9.94052	9.74921	0.25079	1079
522	9.69049	9.94028	9.75021	0.24979	1078
523	9.69125	9.94004	9.75120	0.24880	1077
524	9.69200	9.93980	9.75220	0.24780	1076
525	9.69276	9.93956	9.75320	0.24681	1075
526	9.69351	9.93932	9.75419	0.24581	1074
527	9.69426	9.93908	9.75518	0.24482	1073
528	9.69501	9.93884	9.75617	0.24383	1072
529	9.69575	9.93859	9.75716	0.24284	1071
530	9.69650	9.93835	9.75815	0.24185	**1070**
531	9.69724	9.93810	9.75914	0.24086	1069
532	9.69798	9.93786	9.76013	0.23987	1068
533	9.69872	9.93761	9.76111	0.23889	1067
534	9.69946	9.93737	9.76210	0.23790	1066
535	9.70020	9.93712	9.76308	0.23692	1065
536	9.70093	9.93687	9.76406	0.23594	1064
537	9.70167	9.93662	9.76504	0.23496	1063
538	9.70240	9.93638	9.76602	0.23398	1062
539	9.70313	9.93613	9.76700	0.23300	1061
540	9.70386	9.93588	9.76798	0.23202	**1060**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
540	9.70386	9.93588	9.76798	0.23202	**1060**
541	9.70458	9.93563	9.76896	0.23104	1059
542	9.70531	9.93538	9.76993	0.23007	1058
543	9.70603	9.93512	9.77091	0.22909	1057
544	9.70675	9.93487	9.77188	0.22812	1056
545	9.70747	9.93462	9.77285	0.22715	1055
546	9.70819	9.93437	9.77382	0.22618	1054
547	9.70891	9.93411	9.77479	0.22521	1053
548	9.70962	9.93386	9.77576	0.22424	1052
549	9.71034	9.93361	9.77673	0.22327	1051
550	9.71105	9.93335	9.77770	0.22230	**1050**
551	9.71176	9.93309	9.77867	0.22133	1049
552	9.71247	9.93284	9.77963	0.22037	1048
553	9.71318	9.93258	9.78060	0.21940	1047
554	9.71388	9.93232	9.78156	0.21844	1046
555	9.71459	9.93206	9.78252	0.21748	1045
556	9.71529	9.93181	9.78348	0.21652	1044
557	9.71599	9.93155	9.78444	0.21556	1043
558	9.71669	9.93129	9.78540	0.21460	1042
559	9.71739	9.93103	9.78636	0.21364	1041
560	9.71809	9.93077	9.78732	0.21268	**1040**
561	9.71878	9.93050	9.78828	0.21172	1039
562	9.71947	9.93024	9.78923	0.21077	1038
563	9.72017	9.92998	9.79019	0.20981	1037
564	9.72086	9.92972	9.79114	0.20886	1036
565	9.72154	9.92945	9.79209	0.20791	1035
566	9.72223	9.92919	9.79304	0.20696	1034
567	9.72292	9.92892	9.79400	0.20600	1033
568	9.72360	9.92866	9.79495	0.20505	1032
569	9.72429	9.92839	9.79589	0.20411	1031
570	9.72497	9.92812	9.79684	0.20316	**1030**
571	9.72565	9.92786	9.79779	0.20221	1029
572	9.72633	9.92759	9.79874	0.20126	1028
573	9.72700	9.92732	9.79968	0.20032	1027
574	9.72768	9.92705	9.80063	0.19937	1026
575	9.72835	9.92678	9.80157	0.19843	1025
576	9.72902	9.92651	9.80251	0.19749	1024
577	9.72970	9.92624	9.80346	0.19654	1023
578	9.73037	9.92597	9.80440	0.19560	1022
579	9.73103	9.92570	9.80534	0.19466	1021
580	9.73170	9.92542	9.80628	0.19372	**1020**
581	9.73237	9.92515	9.80721	0.19279	1019
582	9.73303	9.92488	9.80815	0.19185	1018
583	9.73369	9.92460	9.80909	0.19091	1017
584	9.73435	9.92433	9.81003	0.18997	1016
585	9.73501	9.92405	9.81096	0.18904	1015
586	9.73567	9.92378	9.81189	0.18811	1014
587	9.73633	9.92350	9.81283	0.18717	1013
588	9.73698	9.92322	9.81376	0.18624	1012
589	9.73764	9.92294	9.81469	0.18531	1011
590	9.73829	9.92267	9.81562	0.18438	**1010**
591	9.73894	9.92239	9.81655	0.18345	1009
592	9.73959	9.92211	9.81748	0.18252	1008
593	9.74024	9.92183	9.81841	0.18159	1007
594	9.74089	9.92154	9.81934	0.18066	1006
595	9.74153	9.92126	9.82027	0.17973	1005
596	9.74218	9.92098	9.82119	0.17881	1004
597	9.74282	9.92070	9.82212	0.17788	1003
598	9.74346	9.92041	9.82305	0.17695	1002
599	9.74410	9.92013	9.82397	0.17603	1001
600	9.74474	9.91985	9.82489	0.17511	**1000**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
600	9.74474	9.91985	9.82489	0.17511	**1000**
601	9.74538	9.91956	9.82582	0.17418	999
602	9.74601	9.91928	9.82674	0.17326	998
603	9.74665	9.91899	9.82766	0.17234	997
604	9.74728	9.91870	9.82858	0.17142	996
605	9.74791	9.91841	9.82950	0.17050	995
606	9.74854	9.91813	9.83041	0.16959	994
607	9.74917	9.91784	9.83134	0.16866	993
608	9.74980	9.91755	9.83225	0.16775	992
609	9.75043	9.91726	9.83317	0.16683	991
610	9.75105	9.91697	9.83409	0.16591	**990**
611	9.75168	9.91668	9.83500	0.16500	989
612	9.75230	9.91638	9.83592	0.16408	988
613	9.75292	9.91609	9.83683	0.16317	987
614	9.75354	9.91580	9.83774	0.16226	986
615	9.75416	9.91550	9.83866	0.16134	985
616	9.75478	9.91521	9.83957	0.16043	984
617	9.75539	9.91492	9.84048	0.15952	983
618	9.75601	9.91462	9.84139	0.15861	982
619	9.75662	9.91432	9.84230	0.15770	981
620	9.75724	9.91403	9.84321	0.15679	**980**
621	9.75785	9.91373	9.84412	0.15588	979
622	9.75846	9.91343	9.84503	0.15497	978
623	9.75906	9.91313	9.84593	0.15407	977
624	9.75967	9.91283	9.84684	0.15316	976
625	9.76028	9.91253	9.84775	0.15225	975
626	9.76088	9.91223	9.84865	0.15135	974
627	9.76149	9.91193	9.84956	0.15044	973
628	9.76209	9.91163	9.85046	0.14954	972
629	9.76269	9.91133	9.85136	0.14864	971
630	9.76329	9.91102	9.85227	0.14773	**970**
631	9.76389	9.91072	9.85317	0.14683	969
632	9.76448	9.91042	9.85407	0.14593	968
633	9.76508	9.91011	9.85497	0.14503	967
634	9.76568	9.90980	9.85587	0.14413	966
635	9.76627	9.90950	9.85677	0.14323	965
636	9.76686	9.90919	9.85767	0.14233	964
637	9.76745	9.90888	9.85857	0.14143	963
638	9.76804	9.90858	9.85947	0.14053	962
639	9.76863	9.90827	9.86036	0.13964	961
640	9.76922	9.90796	9.86126	0.13874	**960**
641	9.76980	9.90765	9.86216	0.13784	959
642	9.77039	9.90734	9.86305	0.13695	958
643	9.77097	9.90703	9.86395	0.13605	957
644	9.77156	9.90671	9.86484	0.13516	956
645	9.77214	9.90640	9.86574	0.13426	955
646	9.77272	9.90609	9.86663	0.13337	954
647	9.77330	9.90577	9.86752	0.13248	953
648	9.77387	9.90546	9.86842	0.13158	952
649	9.77445	9.90514	9.86931	0.13069	951
650	9.77503	9.90483	9.87020	0.12980	**950**
651	9.77560	9.90451	9.87109	0.12891	949
652	9.77617	9.90419	9.87198	0.12802	948
653	9.77675	9.90388	9.87287	0.12713	947
654	9.77732	9.90356	9.87376	0.12624	946
655	9.77789	9.90324	9.87465	0.12535	945
656	9.77846	9.90292	9.87554	0.12446	944
657	9.77902	9.90260	9.87642	0.12358	943
658	9.77959	9.90228	9.87731	0.12269	942
659	9.78015	9.90196	9.87820	0.12180	941
660	9.78072	9.90163	9.87908	0.12092	**940**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
660	9.78072	9.90163	9.87908	0.12092	**940**
661	9.78128	9.90131	9.87997	0.12003	939
662	9.78184	9.90099	9.88086	0.11914	938
663	9.78240	9.90066	9.88174	0.11826	937
664	9.78296	9.90034	9.88262	0.11738	936
665	9.78352	9.90001	9.88351	0.11649	935
666	9.78408	9.89968	9.88439	0.11561	934
667	9.78463	9.89936	9.88527	0.11473	933
668	9.78519	9.89903	9.88616	0.11384	932
669	9.78574	9.89870	9.88704	0.11296	931
670	9.78629	9.89837	9.88792	0.11208	**930**
671	9.78684	9.89804	9.88880	0.11120	929
672	9.78739	9.89771	9.88968	0.11032	928
673	9.78794	9.89738	9.89056	0.10944	927
674	9.78849	9.89705	9.89144	0.10856	926
675	9.78904	9.89672	9.89232	0.10768	925
676	9.78958	9.89638	9.89320	0.10680	924
677	9.79013	9.89605	9.89408	0.10592	923
678	9.79067	9.89572	9.89496	0.10504	922
679	9.79122	9.89538	9.89583	0.10417	921
680	9.79176	9.89504	9.89671	0.10329	**920**
681	9.79230	9.89471	9.89759	0.10241	919
682	9.79284	9.89437	9.89846	0.10154	918
683	9.79337	9.89403	9.89934	0.10066	917
684	9.79391	9.89370	9.90022	0.09978	916
685	9.79445	9.89336	9.90109	0.09891	915
686	9.79498	9.89302	9.90197	0.09803	914
687	9.79552	9.89268	9.90284	0.09716	913
688	9.79605	9.89233	9.90371	0.09629	912
689	9.79658	9.89199	9.90459	0.09541	911
690	9.79711	9.89165	9.90546	0.09454	**910**
691	9.79764	9.89131	9.90633	0.09367	909
692	9.79817	9.89096	9.90721	0.09279	908
693	9.79870	9.89062	9.90808	0.09192	907
694	9.79922	9.89027	9.90895	0.09105	906
695	9.79975	9.88993	9.90982	0.09018	905
696	9.80027	9.88958	9.91069	0.08931	904
697	9.80080	9.88923	9.91156	0.08844	903
698	9.80132	9.88888	9.91243	0.08757	902
699	9.80184	9.88853	9.91330	0.08670	901
700	9.80236	9.88819	9.91417	0.08583	**900**
701	9.80288	9.88784	9.91504	0.08496	899
702	9.80340	9.88748	9.91591	0.08409	898
703	9.80391	9.88713	9.91678	0.08322	897
704	9.80443	9.88678	9.91765	0.08235	896
705	9.80494	9.88643	0.91852	0.08148	895
706	9.80546	9.88607	9.91938	0.08062	894
707	9.80597	9.88572	9.92025	0.07975	893
708	9.80648	9.88536	9.92112	0.07888	892
709	9.80699	9.88501	9.92198	0.07802	891
710	9.80750	9.88465	9.92285	0.07715	**890**
711	9.80801	9.88429	9.92372	0.07628	889
712	9.80852	9.88394	9.92458	0.07542	888
713	9.80903	9.88358	9.92545	0.07455	887
714	9.80953	9.88322	9.92631	0.07369	886
715	9.81004	9.88286	9.92718	0.07282	885
716	9.81054	9.88250	9.92804	0.07196	884
717	9.81104	9.88213	9.92891	0.07109	883
718	9.81154	9.88177	9.92977	0.07023	882
719	9.81204	9.88141	9.93064	0.06936	881
720	9.81254	9.88105	9.93150	0.06850	**880**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
720	9.81254	9.88105	9.93150	0.06850	**880**
721	9.81304	9.88068	9.93236	0.06764	879
722	9.81354	9.88032	9.93323	0.06677	878
723	9.81404	9.87995	9.93409	0.06591	877
724	9.81453	9.87958	9.93495	0.06505	876
725	9.81503	9.87922	9.93581	0.06419	875
726	9.81552	9.87885	9.93667	0.06333	874
727	9.81601	9.87848	9.93754	0.06246	873
728	9.81651	9.87811	9.93840	0.06160	872
729	9.81700	9.87774	9.93926	0.06074	871
730	9.81749	9.87737	9.94012	0.05988	**870**
731	9.81798	9.87700	9.94098	0.05902	869
732	9.81846	9.87662	9.94184	0.05816	868
733	9.81895	9.87625	9.94270	0.05730	867
734	9.81944	9.87588	9.94356	0.05644	866
735	9.81992	9.87550	9.94442	0.05558	865
736	9.82041	9.87513	9.94528	0.05472	864
737	9.82089	9.87475	9.94614	0.05386	863
738	9.82137	9.87437	9.94700	0.05300	862
739	9.82185	9.87399	9.94786	0.05214	861
740	9.82233	9.87362	9.94872	0.05128	**860**
741	9.82281	9.87324	9.94958	0.05042	859
742	9.82329	9.87286	9.95043	0.04957	858
743	9.82377	9.87248	9.95129	0.04871	857
744	9.82424	9.87209	9.95215	0.04785	856
745	9.82472	9.87171	9.95301	0.04699	855
746	9.82520	9.87133	9.95387	0.04613	854
747	9.82567	9.87095	9.95472	0.04528	853
748	9.82614	9.87056	9.95558	0.04442	852
749	9.82661	9.87018	9.95644	0.04356	851
750	9.82708	9.86979	9.95729	0.04271	**850**
751	9.82755	9.86940	9.95815	0.04185	849
752	9.82802	9.86902	9.95901	0.04099	848
753	9.82849	9.86863	9.95986	0.04014	847
754	9.82896	9.86824	9.96072	0.03928	846
755	9.82942	9.86785	9.96158	0.03842	845
756	9.82989	9.86746	9.96243	0.03757	844
757	9.83035	9.86707	9.96329	0.03671	843
758	9.83082	9.86667	9.96414	0.03586	842
759	9.83128	9.86628	9.96500	0.03500	841
760	9.83174	9.86589	9.96586	0.03414	**840**
761	9.83220	9.86549	9.96671	0.03329	839
762	9.83266	9.86510	9.97757	0.03243	838
763	9.83312	9.86470	9.96842	0.03158	837
764	9.83358	9.86430	9.96928	0.03072	836
765	9.83404	9.86391	9.97013	0.02987	835
766	9.83449	9.86351	9.97099	0.02901	834
767	9.83495	9.86311	9.97184	0.02816	833
768	9.83540	9.86271	9.97269	0.02731	832
769	9.83586	9.86231	9.97355	0.02645	831
770	9.83631	9.86191	9.97440	0.02560	**830**
771	9.83676	9.86150	9.97526	0.02474	829
772	9.83721	9.86110	9.97611	0.02389	828
773	9.83766	9.86070	9.97697	0.02303	827
774	9.83811	9.86029	9.97782	0.02218	826
775	9.83856	9.85989	9.97867	0.02133	825
776	9.83901	9.85948	9.97953	0.02047	824
777	9.83945	9.85907	9.98038	0.01962	823
778	9.83990	9.85867	9.98123	0.01877	822
779	9.84034	9.85826	9.98209	0.01791	821
780	9.84079	9.85785	9.98294	0.01706	**820**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
780	9.84079	9.85785	9.98294	0.01706	**820**
781	9.84123	9.85744	9.98379	0.01621	819
782	9.84167	9.85703	9.98465	0.01535	818
783	9.84211	9.85661	9.98550	0.01450	817
784	9.84255	9.85620	9.98635	0.01365	816
785	9.84299	9.85579	9.98721	0.01279	815
786	9.84343	9.85537	9.98806	0.01194	814
787	9.84387	9.85496	9.98891	0.01109	813
788	9.84431	9.85454	9.98977	0.01023	812
789	9.84474	9.85412	9.99062	0.00938	811
790	9.84518	9.85371	9.99147	0.00853	**810**
791	9.84561	9.85329	9.99232	0.00768	809
792	9.84605	9.85287	9.99318	0.00682	808
793	9.84648	9.85245	9.99403	0.00597	807
794	9.84691	9.85203	9.99488	0.00512	806
795	9.84734	9.85161	9.99574	0.00426	805
796	9.84777	9.85118	9.99659	0.00341	804
797	9.84820	9.85076	9.99744	0.00256	803
798	9.84863	9.85034	9.99829	0.00171	802
799	9.84906	9.84991	9.99915	0.00085	801
800	9.84949	9.84949	0.00000	0.00000	**800**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
0	.00000	1.	.00000	—	**1600**
1	.00098	1.	.00098	1018.591	1599
2	.00196	1.	.00196	509.2952	1598
3	.00295	1.	.00295	339.5296	1597
4	.00393	.99999	.00393	254.6466	1596
5	.00491	.99999	.00491	203.7167	1595
6	.00589	.99998	.00589	169.7633	1594
7	.00687	.99998	.00687	145.5108	1593
8	.00785	.99997	.00785	127.3213	1592
9	.00884	.99996	.00884	113.1739	1591
10	.00982	.99995	.00982	101.8559	**1590**
11	.01080	.99994	.01080	92.59564	1589
12	.01178	.99993	.01178	84.87871	1588
13	.01276	.99992	.01276	78.34895	1587
14	.01374	.99991	.01375	72.75196	1586
15	.01473	.99989	.01473	67.90120	1585
16	.01571	.99988	.01571	63.65674	1584
17	.01669	.99986	.01669	59.91159	1583
18	.01767	.99984	.01767	56.58253	1582
19	.01865	.99983	.01866	53.60387	1581
20	.01963	.99981	.01964	50.92304	**1580**
21	.02062	.99979	.02062	48.49749	1579
22	.02160	.99977	.02160	46.29242	1578
23	.02258	.99975	.02258	44.27907	1577
24	.02356	.99972	.02357	42.43346	1576
25	.02454	.99970	.02455	40.73548	1575
26	.02552	.99967	.02553	39.16809	1574
27	.02650	.99965	.02651	37.71678	1573
28	.02749	.99962	.02750	36.36911	1572
29	.02847	.99959	.02848	35.11436	1571
30	.02945	.99957	.02946	33.94324	**1570**
31	.03043	.99954	.03044	32.84765	1569
32	.03141	.99951	.03143	31.82052	1568
33	.03239	.99948	.03241	30.85561	1567
34	.03337	.99944	.03339	29.94745	1566
35	.03435	.99941	.03437	29.09116	1565
36	.03534	.99938	.03536	28.28243	1564
37	.03632	.99934	.03634	27.51739	1563
38	.03730	.99930	.03732	26.79261	1562
39	.03828	.99927	.03831	26.10497	1561
40	.03926	.99923	.03929	25.45170	**1560**
41	.04024	.99919	.04027	24.83028	1559
42	.04122	.99915	.04126	24.23844	1558
43	.04220	.99911	.04224	23.67410	1557
44	.04318	.99907	.04322	23.13541	1556
45	.04416	.99902	.04421	22.62064	1555
46	.04515	.99898	.04519	22.12824	1554
47	.04613	.99894	.04617	21.65678	1553
48	.04711	.99889	.04716	21.20495	1552
49	.04809	.99884	.04814	20.77155	1551
50	.04907	.99880	.04913	20.35547	**1550**
51	.05005	.99875	.05011	19.95569	1549
52	.05103	.99870	.05110	19.57128	1548
53	.05201	.99865	.05208	19.20136	1547
54	.05299	.99860	.05306	18.84513	1546
55	.05397	.99854	.05405	18.50185	1545
56	.05495	.99849	.05503	18.17081	1544
57	.05593	.99843	.05602	17.85137	1543
58	.05691	.99838	.05700	17.54294	1542
59	.05789	.99832	.05799	17.24495	1541
60	.05887	.99827	.05897	16.95689	**1540**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
60	.05887	.99827	.05897	16.95689	**1540**
61	.05985	.99821	.05996	16.67826	1539
62	.06083	.99815	.06094	16.40860	1538
63	.06181	.99809	.06193	16.14750	1537
64	.06279	.99803	.06291	15.89454	1536
65	.06377	.99796	.06390	15.64936	1535
66	.06475	.99790	.06489	15.41160	1534
67	.06573	.99784	.06587	15.18093	1533
68	.06671	.99777	.06686	14.95703	1532
69	.06769	.99771	.06784	14.73961	1531
70	.06867	.99764	.06883	14.52839	**1530**
71	.06965	.99757	.06982	14.32312	1529
72	.07063	.99750	.07080	14.12354	1528
73	.07161	.99743	.07179	13.92941	1527
74	.07259	.99736	.07278	13.74053	1526
75	.07356	.99729	.07376	13.55667	1525
76	.07454	.99722	.07475	13.37764	1524
77	.07552	.99714	.07574	13.20325	1523
78	.07650	.99707	.07673	13.03333	1522
79	.07748	.99699	.07771	12.86770	1521
80	.97846	.99692	.07870	12.70620	**1520**
81	.07944	.99684	.07969	12.54869	1519
82	.08042	.99676	.08068	12.39500	1518
83	.08139	.99668	.08167	12.24501	1517
84	.08237	.99660	.08265	12.09859	1516
85	.08335	.99652	.08364	11.95560	1515
86	.08433	.99644	.08463	11.81593	1514
87	.08531	.99635	.08562	11.67947	1513
88	.08629	.99627	.08661	11.54609	1512
89	.08726	.99619	.08760	11.41571	1511
90	.08824	.99610	.08859	11.28822	**1510**
91	.08922	.99601	.08958	11.16352	1509
92	.09020	.99592	.09057	11.04152	1508
93	.09118	.99583	.09156	10.92215	1507
94	.09215	.99574	.09255	10.80530	1506
95	.09313	.99565	.09354	10.69091	1505
96	.09411	.99556	.09453	10.57890	1504
97	.09509	.99547	.09552	10.46918	1503
98	.09606	.99538	.09651	10.36170	1502
99	.09704	.99528	.09750	10.25639	1501
100	.09802	.99518	.09849	10.15317	**1500**
101	.09899	.99509	.09948	10.0520	1499
102	.09997	.99499	.10047	9.95279	1498
103	.10095	.99489	.10147	9.85551	1497
104	.10192	.99479	.10246	9.76009	1496
105	.10290	.99469	.10345	9.66649	1495
106	.10388	.99459	.10444	9.57464	1494
107	.10485	.99449	.10544	9.48451	1493
108	.10583	.99438	.10643	9.39603	1492
109	.10681	.99428	.10742	9.30918	1491
110	.10778	.99417	.10841	9.22390	**1490**
111	.10876	.99407	.10941	9.14015	1489
112	.10973	.99396	.11040	9.05789	1488
113	.11071	.99385	.11139	8.97708	1487
114	.11169	.99374	.11239	8.89768	1486
115	.11266	.99363	.11338	8.81965	1485
116	.11364	.99352	.11438	8.74297	1484
117	.11461	.99341	.11537	8.66759	1483
118	.11559	.99330	.11637	8.59348	1482
119	.11656	.99318	.11736	8.52062	1481
120	.11754	.99307	.11836	8.44896	**1480**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
120	.11754	.99307	.11836	8.44896	**1480**
121	.11851	.99295	.11935	8.37848	1479
122	.11949	.99284	.12035	8.30915	1478
123	.12046	.99272	.12135	8.24094	1477
124	.12144	.99260	.12234	8.17383	1476
125	.12241	.99248	.12334	8.10779	1475
126	.12338	.99236	.12434	8.04278	1474
127	.12435	.99224	.12533	7.97880	1473
128	.12533	.99211	.12633	7.91581	1472
129	.12631	.99199	.12733	7.85380	1471
130	.12728	.99187	.12832	7.79273	**1470**
131	.12825	.99174	.12932	7.73259	1469
132	.12923	.99161	.13032	7.67336	1468
133	.13020	.99149	.13132	7.61501	1467
134	.13118	.99136	.13232	7.55753	1466
135	.13215	.99123	.13332	7.50089	1465
136	.13312	.99110	.13432	7.44509	1464
137	.13409	.99097	.13532	7.39009	1463
138	.13507	.99084	.13632	7.33588	1462
139	.13604	.99070	.13732	7.28245	1461
140	.13701	.99057	.13832	7.22978	**1460**
141	.13798	.99043	.13932	7.17785	1459
142	.13896	.99030	.14032	7.12665	1458
143	.13993	.99016	.14132	7.07616	1457
144	.14090	.99002	.14232	7.02637	1456
145	.14187	.98988	.14332	6.97725	1455
146	.14284	.98975	.14432	6.82881	1454
147	.14382	.98960	.14533	6.88102	1453
148	.14479	.98946	.14633	6.83387	1452
149	.14576	.98932	.14733	6.78736	1451
150	.14673	.98918	.14834	6.74145	**1450**
151	.14770	.98903	.14934	6.69615	1449
152	.14867	.98889	.15034	6.65144	1448
153	.14964	.98874	.15135	6.60732	1447
154	.15061	.98859	.15235	6.56376	1446
155	.15158	.98844	.15336	6.52076	1445
156	.15255	.98830	.15436	6.47830	1444
157	.15352	.98814	.15537	6.43638	1443
158	.15449	.98799	.15637	6.39499	1442
159	.15546	.98784	.15738	6.35412	1441
160	.15643	.98769	.15838	6.31375	**1440**
161	.15740	.98753	.15939	6.27388	1439
162	.15837	.98738	.16040	6.23450	1438
163	.15934	.98722	.16140	6.19560	1437
164	.16031	.98707	.16241	6.15716	1436
165	.16128	.98691	.16342	6.11919	1435
166	.16225	.98675	.16443	6.08167	1434
167	.16322	.98659	.16544	6.04460	1433
168	.16419	.98643	.16645	6.00797	1432
169	.16516	.98627	.16745	5.97176	1431
170	.16612	.98610	.16846	5.93598	**1430**
171	.16709	.98594	.16947	5.90061	1429
172	.16806	.98578	.17048	5.86565	1428
173	.16903	.98561	.17149	5.83109	1427
174	.16999	.98545	.17251	5.79692	1426
175	.17096	.98528	.17352	5.76314	1425
176	.17193	.98511	.17453	5.72974	1424
177	.17290	.98494	.17554	5.69671	1423
178	.17386	.98477	.17655	5.66406	1422
179	.17483	.98460	.17756	5.63176	1421
180	.17580	.98443	.17858	5.59981	**1420**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
180	.17580	.98443	.17858	5.59981	**1420**
181	.17676	.98425	.17959	5.56822	1419
182	.17773	.98408	.18060	5.53697	1418
183	.17869	.98390	.18162	5.50606	1417
184	.17966	.98373	.18263	5.47548	1416
185	.18063	.98355	.18365	5.44523	1415
186	.18159	.98337	.18466	5.41530	1414
187	.18256	.98320	.18568	5.38568	1413
188	.18352	.98302	.18669	5.35638	1412
189	.18449	.98283	.18771	5.32738	1411
190	.18545	.98265	.18873	5.29869	**1410**
191	.18642	.98247	.18974	5.27029	1409
192	.18738	.98229	.19076	5.24218	1408
193	.18835	.98210	.19178	5.21437	1407
194	.18931	.98192	.19280	5.18683	1406
195	.19027	.98173	.19381	5.15958	1405
196	.19124	.98154	.19483	5.13260	1404
197	.19220	.98136	.19585	5.10589	1403
198	.19316	.98117	.19687	5.07944	1402
199	.19413	.98098	.19789	5.05326	1401
200	.19509	.98079	.19891	5.02734	**1400**
201	.19605	.98059	.19993	5.00167	1399
202	.19702	.98040	.20095	4.97625	1398
203	.19798	.98021	.20198	4.95108	1397
204	.19894	.98001	.20300	4.92616	1396
205	.19990	.97982	.20402	4.90147	1395
206	.20086	.97962	.20504	4.87702	1394
207	.20183	.97942	.20607	4.85280	1393
208	.20279	.97922	.20709	4.82882	1392
209	.20375	.97902	.20811	4.80506	1391
210	.20471	.97882	.20914	4.78152	**1390**
211	.20567	.97862	.21016	4.75820	1389
212	.20663	.97842	.21119	4.73510	1388
213	.20759	.97822	.21221	4.71221	1387
214	.20855	.97801	.21324	4.68954	1386
215	.20951	.97781	.21427	4.66707	1385
216	.21047	.97760	.21529	4.64480	1384
217	.21143	.97739	.21632	4.62274	1383
218	.21239	.97718	.21735	4.60088	1382
219	.21335	.97698	.21838	4.57921	1381
220	.21431	.97677	.21941	4.55774	**1380**
221	.21527	.97656	.22044	4.53646	1379
222	.21623	.97634	.22147	4.51537	1378
223	.21719	.97613	.22250	4.49446	1377
224	.21814	.97592	.22353	4.47374	1376
225	.21910	.97570	.22456	4.54320	1375
226	.22006	.97549	.22559	4.43284	1374
227	.22102	.97527	.22662	4.41266	1373
228	.22197	.97505	.22765	4.39264	1372
229	.22293	.97483	.22869	4.37280	1371
230	.22389	.97461	.22972	4.35313	**1370**
231	.22484	.97439	.23075	4.33363	1369
232	.22580	.97417	.23179	4.31430	1368
233	.22676	.97395	.23282	4.29512	1367
234	.22771	.97373	.23386	4.27611	1366
235	.22867	.97350	.23489	4.25725	1365
236	.22963	.97328	.23593	4.23856	1364
237	.23058	.97305	.23697	4.22002	1363
238	.23154	.97283	.23800	4.20163	1362
239	.23259	.97260	.23904	4.18339	1361
240	.23345	.97237	.24008	4.16530	**1360**
Mils	Cos	Sin	Cot	Tan	Mils

Mils	Sin	Cos	Tan	Cot	Mils
240	.23345	.97237	.24008	4.16530	**1360**
241	.23440	.97214	.24112	4.14756	1359
242	.23535	.97191	.24216	4.12956	1358
243	.23631	.97168	.24320	4.11191	1357
244	.23726	.97145	.24424	4.09440	1356
245	.23822	.97121	.24528	4.07703	1355
246	.23917	.97098	.24632	4.05980	1354
247	.24012	.97074	.24736	4.04270	1353
248	.24108	.97051	.24840	4.02574	1352
249	.24203	.97027	.24944	4.00892	1351
250	.24298	.97003	.25049	3.99222	**1350**
251	.24393	.96979	.25153	3.97566	1349
252	.24488	.96955	.25257	3.95923	1348
253	.24584	.96931	.25362	3.94292	1347
254	.24679	.96907	.25466	3.92674	1346
255	.24774	.96883	.25571	3.91068	1345
256	.24869	.96858	.25676	3.89474	1344
257	.24964	.96834	.25780	3.87893	1343
258	.25059	.96809	.25885	3.86324	1342
259	.25154	.96785	.25990	3.84766	1341
260	.25249	.96760	.26095	3.83220	**1340**
261	.25344	.96735	.26200	3.81686	1339
262	.25439	.96710	.26304	3.80163	1338
263	.25534	.96685	.26409	3.78652	1337
264	.25629	.96660	.26515	3.77152	1336
265	.25724	.96635	.26620	3.75663	1335
266	.25819	.96610	.26725	3.74185	1334
267	.25914	.96584	.26830	3.72717	1333
268	.26008	.96559	.26935	3.71260	1332
269	.26103	.96533	.27041	3.69814	1331
270	.26198	.96507	.27146	3.68379	**1330**
271	.26293	.96482	.27251	3.66953	1329
272	.26387	.96456	.27357	3.65538	1328
273	.26482	.96430	.27462	3.64134	1327
274	.26577	.96404	.27568	3.62739	1326
275	.26671	.96378	.27674	3.61354	1325
276	.26766	.96351	.27779	3.59978	1324
277	.26860	.96325	.27885	3.58613	1323
278	.26955	.96299	.27991	3.57257	1322
279	.27050	.96272	.28079	3.55910	1321
280	.27144	.96246	.28203	3.54573	**1320**
281	.27239	.96219	.28309	3.53245	1319
282	.27333	.96192	.28415	3.51927	1318
283	.27427	.96165	.28521	3.50617	1317
284	.27522	.96138	.28627	3.49317	1316
285	.27616	.96111	.28734	3.48025	1315
286	.27711	.96084	.28840	3.46742	1314
287	.27805	.96057	.28946	3.45468	1313
288	.27899	.96029	.29053	3.44202	1312
289	.27993	.96002	.29159	3.42945	1311
290	.28088	.95974	.29266	3.41697	**1310**
291	.28182	.95947	.29372	3.40456	1309
292	.28276	.95919	.29479	3.39224	1308
293	.28370	.95891	.29586	3.38000	1307
294	.28464	.95863	.29693	3.36785	1306
295	.28558	.95835	.29799	3.35577	1305
296	.28652	.95807	.29906	3.34377	1304
297	.28746	.95779	.30013	3.33185	1303
298	.28840	.95751	.30120	3.32001	1302
299	.28934	.95722	.30227	3.30825	1301
300	.29028	.95694	.30335	3.29656	**1300**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
300	.29028	.95694	.30335	3.29656	**1300**
301	.29122	.95665	.30442	3.28495	1299
302	.29216	.95637	.30549	3.27341	1298
303	.29310	.95608	.30657	3.26194	1297
304	.29404	.95579	.30764	3.25055	1296
305	.29498	.95550	.30872	3.23923	1295
306	.29592	.95521	.30979	3.22798	1294
307	.29685	.95492	.31087	3.21681	1293
308	.29779	.95463	.31194	3.20570	1292
309	.29873	.95434	.31302	3.19467	1291
310	.29967	.95404	.31410	3.18370	**1290**
311	.30060	.95375	.31518	3.17280	1289
312	.30154	.95345	.31626	3.16197	1288
313	.30247	.95316	.31734	3.15121	1287
314	.30341	.95286	.31842	3.14051	1286
315	.30434	.95256	.31950	3.12988	1285
316	.30528	.95226	.32058	3.11931	1284
317	.30621	.95196	.32167	3.10881	1283
318	.30715	.95166	.32275	3.09837	1282
319	.30808	.95136	.32383	3.08800	1281
320	.30902	.95106	.32492	3.07768	**1280**
321	.30995	.95075	.32601	3.06743	1279
322	.31088	.95045	.32709	3.05725	1278
323	.31182	.95014	.32818	3.04712	1277
324	.31275	.94984	.32927	3.03705	1276
325	.31368	.94953	.33036	3.02704	1275
326	.31461	.94922	.33144	3.01710	1274
327	.31555	.94891	.33253	3.00721	1273
328	.31648	.94860	.33363	2.99738	1272
329	.31741	.94829	.33472	2.98760	1271
330	.31834	.94798	.33581	2.97789	**1270**
331	.31927	.94766	.33690	2.96823	1269
332	.32020	.94735	.33800	2.95862	1268
333	.32113	.94704	.33909	2.94908	1267
334	.32206	.94672	.34018	2.93958	1266
335	.32299	.94640	.34128	2.93014	1265
336	.32392	.94609	.34238	2.92076	1264
337	.32485	.94577	.34347	2.91143	1263
338	.32577	.94545	.34457	2.90215	1262
339	.32670	.94513	.34567	2.89293	1261
340	.32763	.94481	.34677	2.88376	**1260**
341	.32856	.94448	.34787	2.87464	1259
342	.32948	.94416	.34897	2.86557	1258
343	.33041	.94384	.35007	2.85655	1257
344	.33134	.94351	.35118	2.84758	1256
345	.33226	.94319	.35228	2.83867	1255
346	.33319	.94286	.35338	2.82980	1254
347	.33412	.94253	.35449	2.82098	1253
348	.33504	.94220	.35559	2.81221	1252
349	.33597	.94187	.35670	2.80349	1251
350	.33689	.94154	.35781	2.79481	**1250**
351	.33781	.94121	.35891	2.78619	1249
352	.33874	.94088	.36002	2.77761	1248
353	.33966	.94055	.36113	2.76907	1247
354	.34058	.94021	.36224	2.76059	1246
355	.34151	.93988	.36335	2.75215	1245
356	.34243	.93954	.36446	2.74375	1244
357	.34335	.93921	.36558	2.73540	1243
358	.34427	.93887	.36669	2.72710	1242
359	.34520	.93853	.36780	2.71884	1241
360	.34612	.93819	.36892	2.71062	**1240**
Mils	**Sin**	**Cos**	**Tan**	**Cot**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
360	.34612	.93819	.36892	2.71062	**1240**
361	.34704	.93785	.37004	2.70245	1239
362	.34796	.93751	.37115	2.69432	1238
363	.34888	.93717	.37227	2.68623	1237
364	.34980	.93682	.37339	2.67818	1236
365	.35072	.93648	.37451	2.67018	1235
366	.35164	.93613	.37563	2.66222	1234
367	.35256	.93579	.37675	2.65430	1233
368	.35347	.93544	.37787	2.64642	1232
369	.35439	.93510	.37899	2.63859	1231
370	.35531	.93475	.38011	2.63079	**1230**
371	.35623	.93440	.38124	2.62303	1229
372	.35715	.93405	.38236	2.61532	1228
373	.35806	.93370	.38349	2.60764	1227
374	.35898	.93335	.38462	2.60000	1226
375	.35990	.93299	.38574	2.59240	1225
376	.36081	.93264	.38687	2.58484	1224
377	.36173	.93228	.38800	2.57732	1223
378	.36264	.93193	.38913	2.56984	1222
379	.36356	.93157	.39026	2.56239	1221
380	.36447	.93121	.39139	2.55498	**1220**
381	.36538	.93086	.39253	2.54761	1219
382	.36630	.93050	.39366	2.54027	1218
383	.36721	.93014	.39479	2.53297	1217
384	.36812	.92978	.39593	2.52571	1216
385	.36904	.92941	.39706	2.51849	1215
386	.36995	.92905	.39821	2.51129	1214
387	.37086	.92869	.39934	2.50414	1213
388	.37177	.92832	.40048	2.49702	1212
389	.37268	.92796	.40162	2.48993	1211
390	.37359	.92759	.40276	2.48288	**1210**
391	.37451	.92722	.40390	2.47586	1209
392	.37542	.92686	.40504	2.46888	1208
393	.37633	.92649	.40618	2.46193	1207
394	.37723	.92612	.40733	2.45502	1206
395	.37814	.92575	.40847	2.44813	1205
396	.37905	.92538	.40962	2.44129	1204
397	.37996	.92500	.41077	2.43447	1203
398	.38087	.92463	.41192	2.42769	1202
399	.38178	.92425	.41306	2.42093	1201
400	.38268	.92388	.41421	2.41421	**1200**
401	.38359	.92350	.41536	2.40753	1199
402	.38450	.92313	.41652	2.40087	1198
403	.38540	.92275	.41767	2.39424	1197
404	.38631	.92237	.41882	2.38765	1196
405	.38721	.92199	.41998	2.38109	1195
406	.38812	.92161	.42113	2.37455	1194
407	.38902	.92123	.42229	2.36805	1193
408	.38993	.92085	.42345	2.36158	1192
409	.39083	.92046	.42460	2.35514	1191
410	.39174	.92008	.42576	2.34873	**1190**
411	.39264	.91969	.42692	2.34235	1189
412	.39354	.91931	.42808	2.33599	1188
413	.39444	.91892	.42925	2.32966	1187
414	.39535	.91853	.43041	2.32337	1186
415	.39625	.91814	.43157	2.31710	1185
416	.39715	.91775	.43274	2.31086	1184
417	.39805	.91736	.43390	2.30466	1183
418	.39895	.91697	.43507	2.29848	1182
419	.39985	.91658	.43624	2.29232	1181
420	.40075	.91619	.43741	2.28619	**1180**
Mils	**Sin**	**Cos**	**Tan**	**Cot**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
420	.40075	.91619	.43741	2.28619	**1180**
421	.40165	.91579	.43858	2.28009	1179
422	.40255	.91540	.43975	2.27402	1178
423	.40345	.91500	.44092	2.26797	1177
424	.40434	.91461	.44210	2.26196	1176
425	.40524	.91421	.44327	2.25596	1175
426	.40614	.91381	.44444	2.25000	1174
427	.40704	.91341	.44562	2.24406	1173
428	.40793	.91301	.44680	2.23815	1172
429	.40883	.91261	.44798	2.23226	1171
430	.40972	.91221	.44916	2.22640	**1170**
431	.41062	.91181	.45034	2.22056	1169
432	.41151	.91140	.45152	2.21475	1168
433	.41241	.91100	.45270	2.20897	1167
434	.41330	.91059	.45388	2.20321	1166
435	.41420	.91019	.45507	2.19748	1165
436	.41509	.90978	.45625	2.19176	1164
437	.41598	.90937	.45744	2.18608	1163
438	.41688	.90896	.45863	2.18042	1162
439	.41777	.90855	.45982	2.17478	1161
440	.41866	.90814	.46101	2.16917	**1160**
441	.41955	.90773	.46220	2.16358	1159
442	.42044	.90732	.46339	2.15801	1158
443	.42133	.90691	.46458	2.15247	1157
444	.42222	.90649	.46578	2.14695	1156
445	.42311	.90608	.46697	2.14146	1155
446	.42400	.90566	.46817	2.13598	1154
447	.42489	.90524	.46937	2.13053	1153
448	.42578	.90483	.47056	2.12511	1152
449	.42667	.90441	.47176	2.11970	1151
450	.42756	.90399	.47296	2.11432	**1150**
451	.42844	.90357	.47417	2.10896	1149
452	.42933	.90315	.47537	2.10363	1148
453	.43022	.90273	.47657	2.09831	1147
454	.43110	.90230	.47778	2.09302	1146
455	.43199	.90188	.47899	2.08775	1145
456	.43287	.90146	.48019	2.08250	1144
457	.43376	.90103	.48140	2.07727	1143
458	.43464	.90060	.48261	2.07206	1142
459	.43553	.90018	.48382	2.06687	1141
460	.43641	.89975	.48503	2.06171	**1140**
461	.43729	.89932	.48625	2.05656	1139
462	.43818	.89889	.48746	2.05144	1138
463	.43906	.89846	.48868	2.04634	1137
464	.43994	.89803	.48989	2.04125	1136
465	.44082	.89760	.49111	2.03619	1135
466	.44170	.89716	.49233	2.03115	1134
467	.44258	.89673	.49355	2.02613	1133
468	.44346	.89629	.49477	2.02113	1132
469	.44434	.89586	.49600	2.01614	1131
470	.44522	.89542	.49722	2.01118	**1130**
471	.44610	.89498	.49845	2.00624	1129
472	.44698	.89454	.49967	2.00131	1128
473	.44786	.89410	.50090	1.99641	1127
474	.44873	.89366	.50213	1.99152	1126
475	.44961	.89322	.50336	1.98666	1125
476	.45049	.89278	.50459	1.98181	1124
477	.45136	.89234	.50582	1.97698	1123
478	.45224	.89190	.50705	1.97217	1122
479	.45312	.89145	.50829	1.96738	1121
480	.45399	.89101	.50953	1.96261	**1120**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
480	.45399	.89101	.50953	1.96261	**1120**
481	.45487	.89056	.51076	1.95786	1119
482	.45574	.89011	.51200	1.95312	1118
483	.45661	.88967	.51324	1.94840	1117
484	.45749	.88922	.51448	1.94370	1116
495	.45836	.88877	.51572	1.93902	1115
486	.45923	.88832	.51697	1.93436	1114
487	.46010	.88787	.51821	1.92971	1113
488	.46097	.88741	.51946	1.92508	1112
489	.46184	.88696	.52071	1.92047	1111
490	.46271	.88651	.52195	1.91588	**1110**
491	.46358	.88605	.52320	1.91130	1109
492	.46445	.88560	.52446	1.90674	1108
493	.46532	.88514	.52571	1.90220	1107
494	.46619	.88468	.52696	1.89767	1106
495	.46706	.88422	.52822	1.89316	1105
496	.46793	.88377	.52947	1.88867	1104
497	.46880	.88331	.53073	1.88420	1103
498	.46966	.88285	.53199	1.87974	1102
499	.47053	.88238	.53325	1.87529	1101
500	.47140	.88192	.53451	1.87087	**1100**
501	.47226	.88146	.53577	1.86646	1099
502	.47313	.88099	.53704	1.86206	1098
503	.47399	.88053	.53830	1.85769	1097
504	.47486	.88006	.53957	1.85333	1096
505	.47572	.87960	.54084	1.84898	1095
506	.47658	.87913	.54211	1.84465	1094
507	.47745	.87866	.54338	1.84033	1093
508	.47831	.87819	.54465	1.83604	1092
509	.47917	.87772	.54593	1.83175	1091
510	.48003	.87725	.54720	1.82748	**1090**
511	.48089	.87678	.54848	1.82323	1089
512	.48175	.87631	.54975	1.81899	1088
513	.48261	.87583	.55103	1.81477	1087
514	.48347	.87536	.55231	1.81056	1086
515	.48433	.87488	.55360	1.80637	1085
516	.48519	.87441	.55488	1.80219	1084
517	.48605	.87393	.55616	1.79803	1083
518	.48691	.87345	.55745	1.79388	1082
519	.48776	.87298	.55874	1.78975	1081
520	.48862	.87250	.56003	1.78563	**1080**
521	.48948	.87202	.56132	1.78152	1079
522	.49033	.87153	.56261	1.77743	1078
523	.49119	.87105	.56390	1.77336	1077
524	.49204	.87057	.56520	1.76929	1076
525	.49290	.87009	.56649	1.76525	1075
526	.49375	.86960	.56779	1.76121	1074
527	.49461	.86912	.56909	1.75719	1073
528	.49546	.86863	.57039	1.75319	1072
529	.49631	.86814	.57169	1.74919	1071
530	.49716	.86766	.57300	1.74522	**1070**
531	.49802	.86717	.57430	1.74125	1069
532	.49887	.86668	.57561	1.73730	1068
533	.49972	.86619	.57691	1.73336	1067
534	.50057	.86570	.57822	1.72944	1066
535	.50142	.86521	.57953	1.72552	1065
536	.50227	.86471	.58085	1.72163	1064
537	.50311	.86422	.58216	1.71774	1063
538	.50396	.86372	.58348	1.71387	1062
539	.50481	.86323	.58479	1.71001	1061
540	.50566	.86273	.58611	1.70616	**1060**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
540	.50566	.86273	.58611	1.70616	**1060**
541	.50650	.86224	.58743	1.70233	1059
542	.50735	.86174	.58875	1.69851	1058
543	.50820	.86124	.59007	1.69470	1057
544	.50904	.86074	.59140	1.69091	1056
545	.50989	.86024	.59272	1.68713	1055
546	.51073	.85974	.59405	1.68336	1054
547	.51157	.85924	.59538	1.67960	1053
548	.51242	.85874	.59671	1.67585	1052
549	.51326	.85823	.59804	1.67212	1051
550	.51410	.85773	.59938	1.66840	**1050**
551	.51494	.85722	.60071	1.66469	1049
552	.51579	.85672	.60205	1.66099	1048
553	.51663	.85621	.60339	1.65731	1047
554	.51747	.85570	.60473	1.65364	1046
555	.51831	.85519	.60607	1.64998	1045
556	.51915	.85469	.60741	1.64633	1044
557	.51999	.85418	.60876	1.64269	1043
558	.52082	.85366	.61010	1.63907	1042
559	.52166	.85315	.61145	1.63545	1041
560	.52250	.85264	.61280	1.63185	**1040**
561	.52334	.85213	.61415	1.62826	1039
562	.52417	.85161	.61550	1.62468	1038
563	.52501	.85110	.61686	1.62112	1037
564	.52584	.85058	.61822	1.61756	1036
565	.52668	.85007	.61957	1.61401	1035
566	.52751	.84955	.62093	1.61048	1034
567	.52835	.84903	.62229	1.60696	1033
568	.52918	.84851	.62366	1.60345	1032
569	.53001	.84799	.62502	1.59995	1031
570	.53084	.84747	.62639	1.59646	**1030**
571	.53168	.84695	.62775	1.59298	1029
572	.53251	.84643	.62912	1.58951	1028
573	.53334	.84590	.63050	1.58605	1027
574	.53417	.84538	.63187	1.58261	1026
575	.53500	.84485	.63324	1.57917	1025
576	.53583	.84433	.63462	1.57575	1024
577	.53666	.84380	.63600	1.57233	1023
578	.53748	.84327	.63738	1.56893	1022
579	.53831	.84275	.63876	1.56554	1021
580	.53914	.84222	.64014	1.56215	**1020**
581	.53996	.84169	.64153	1.55878	1019
582	.54079	.84116	.64291	1.55542	1018
583	.54162	.84063	.64430	1.55207	1017
584	.54244	.84009	.64569	1.54873	1016
585	.54327	.83956	.64708	1.54540	1015
586	.54409	.83903	.64848	1.54207	1014
587	.54491	.83849	.64987	1.53876	1013
588	.54574	.83796	.65127	1.53546	1012
589	.54656	.83742	.65267	1.53217	1011
590	.54738	.83688	65407	1.52889	**1010**
591	.54820	.83635	.65547	1.52562	1009
592	.54902	.83581	.65688	1.52235	1008
593	.54984	.83527	.65828	1.51910	1007
594	.55066	.83473	.65969	1.51586	1006
595	.55148	.83419	.66110	1.51263	1005
596	.55230	.83364	.66251	1.50940	1004
597	.55312	.83310	.66393	1.50619	1003
598	.55394	.83256	.66534	1.50299	1002
599	.55475	.83201	.66676	1.49979	1001
600	.55557	.83147	.66818	1.49661	**1000**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
600	.55557	.83147	.66818	1.49661	**1000**
601	.55639	.83092	.66960	1.49343	999
602	.55720	.83038	.67102	1.49026	998
603	.55802	.82983	.67245	1.48711	997
604	.55883	.82928	.67387	1.48396	996
605	.55964	.82873	.67530	1.48082	995
606	.56046	.82818	.67673	1.47769	994
607	.56127	.82763	.67817	1.47457	993
608	.56208	.82708	.67960	1.47146	992
609	.56290	.82653	.68104	1.46835	991
610	.56371	.82598	.68247	1.46526	**990**
611	.56452	.82542	.68391	1.46217	989
612	.56533	.82487	.68536	1.45910	988
613	.56614	.82431	.68680	1.45603	987
614	.56695	.82376	.68825	1.45297	986
615	.56775	.82320	.68969	1.44992	985
616	.56856	.82264	.69114	1.44688	984
617	.56937	.82208	.69259	1.44385	983
618	.57018	.82152	.69405	1.44082	982
619	.57098	.82096	.69550	1.43781	981
620	.57179	.82040	.69696	1.43480	**980**
621	.57259	.81984	.69842	1.43180	979
622	.57340	.81928	.69988	1.42881	978
623	.57420	.81871	.70135	1.42583	977
624	.57501	.81815	.70281	1.42286	976
625	.57581	.81759	.70428	1.41989	975
626	.57661	.81702	.70575	1.41693	974
627	.57741	.81645	.70722	1.41399	973
628	.57821	.81589	.70869	1.41104	972
629	.57901	.81532	.71017	1.40811	971
630	.57981	.81475	.71165	1.40519	**970**
631	.58061	.81418	.71313	1.40227	969
632	.58141	.81361	.71461	1.39936	968
633	.58221	.81304	.71609	1.39646	967
634	.58301	.81247	.71758	1.39357	966
635	.58381	.81189	.71907	1.39069	965
636	.58460	.81132	.72056	1.38781	964
637	.58540	.81074	.72205	1.38494	963
638	.58620	.81017	.72355	1.38208	962
639	.58699	.80959	.72504	1.37923	961
640	.58779	.80902	.72654	1.37638	**960**
641	.58858	.80844	.72804	1.37354	959
642	.58937	.80786	.72955	1.37071	958
643	.59017	.80728	.73105	1.36789	957
644	.59096	.80670	.73256	1.36508	956
645	.59175	.80612	.73407	1.36227	955
646	.59254	.80554	.73558	1.35947	954
647	.59343	.80496	.73710	1.35668	953
648	.59412	.80438	.73861	1.35389	952
649	.59491	.80379	.74013	1.35111	951
650	.59570	.80321	.74165	1.34834	**950**
651	.59649	.80262	.74317	1.34558	949
652	.59728	.80204	.74470	1.34283	948
653	.59806	.80145	.74623	1.34008	947
654	.59885	.80086	.74776	1.33734	946
655	.59963	.80027	.74929	1.33460	945
656	.60042	.79968	.75082	1.33187	944
657	.60121	.79909	.75236	1.32916	943
658	.60199	.79850	.75390	1.32644	942
659	.60277	.79791	.75544	1.32374	941
660	.60356	.79732	.75698	1.32104	**940**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
660	.60356	.79732	.75698	1.32104	**940**
661	.60434	.79673	.75853	1.31835	939
662	.60512	.79613	.76007	1.31566	938
663	.60590	.79554	.76162	1.31298	937
664	.60668	.79494	.76318	1.31031	936
665	.60746	.79435	.76473	1.30765	935
666	.60824	.79375	.76629	1.30499	934
667	.60902	.79315	.76785	1.30234	933
668	.60980	.79256	.76941	1.29970	932
669	.61058	.79196	.77097	1.29706	931
670	.61135	.79136	.77254	1.29443	**930**
671	.61213	.79076	.77411	1.29181	929
672	.61291	.79016	.77568	1.28919	928
673	.61368	.78955	.77725	1.28658	927
674	.61446	.78895	.77883	1.28398	926
675	.61523	.78835	.78041	1.28138	925
676	.61601	.78774	.78199	1.27879	924
677	.61678	.78714	.78357	1.27621	923
678	.61755	.78653	.78516	1.27363	922
679	.61832	.78592	.78675	1.27106	921
680	.61909	.78532	.78834	1.26849	**920**
681	.61986	.78471	.78993	1.26594	919
682	.62063	.78410	.79153	1.26338	918
683	.62140	.78349	.79312	1.26084	917
684	.62217	.78288	.79472	1.25830	916
685	.62294	.78227	.79633	1.25577	915
686	.62371	.78166	.79793	1.25324	914
687	.62448	.78104	.79954	1.25072	913
688	.62524	.78043	.80115	1.24820	912
689	.62601	.77982	.80276	1.24570	911
690	.62677	.77920	.80438	1.24319	**910**
691	.62754	.77859	.80600	1.24070	909
692	.62830	.77797	.80762	1.23821	908
693	.62907	.77735	.80924	1.23572	907
694	.62983	.77673	.81087	1.23325	906
695	.63059	.77612	.81250	1.23077	905
696	.63135	.77550	.81413	1.22831	904
697	.63211	.77488	.81576	1.22585	903
698	.63287	.77425	.81740	1.22339	902
699	.63363	.77363	.81904	1.22095	901
700	.63439	.77301	.82068	1.21850	**900**
701	.63515	.77239	.82232	1.21607	899
702	.63591	.77176	.82397	1.21364	898
703	.63667	.77114	.82562	1.21121	897
704	.63742	.77051	.82727	1.20870	896
705	.63818	.76989	.82893	1.20638	895
706	.63893	.76926	.83058	1.20397	894
707	.63969	.76863	.83225	1.20157	893
708	.64044	.76800	.83391	1.19917	892
709	.64120	.76737	.83557	1.19678	891
710	.64195	.76674	.83724	1.19440	**890**
711	.64270	.76611	.83891	1.19203	889
712	.64346	.76548	.84059	1.18964	888
713	.64421	.76485	.84226	1.18728	887
714	.64496	.76422	.84394	1.18491	886
715	.64571	.76358	.84563	1.18256	885
716	.64646	.76295	.84731	1.18020	884
717	.64721	.76232	.84900	1.17786	883
718	.64795	.76168	.85069	1.17552	882
719	.64870	.76104	.85238	1.17318	881
720	.64945	.76041	.85408	1.17085	**880**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
720	.64945	.76041	.85408	1.17085	**880**
721	.65019	.75977	.85578	1.16852	879
722	.65094	.75913	.85748	1.16620	878
723	.65168	.75849	.85919	1.16389	877
724	.65243	.75785	.86090	1.16158	876
725	.65317	.75721	.86261	1.15928	875
726	.65392	.75657	.86432	1.15698	874
727	.65466	.75592	.86604	1.15469	873
728	.65540	.75528	.86776	1.15240	872
729	.65614	.75464	.86948	1.15011	871
730	.65688	.75399	.87120	1.14784	**870**
731	.65762	.75335	.87293	1.14556	869
732	.65836	.75270	.87466	1.14330	868
733	.65910	.75206	.87640	1.14103	867
734	.65984	.75141	.87814	1.13878	866
735	.66058	.75076	.87988	1.13652	865
736	.66131	.75011	.88162	1.13428	864
737	.66205	.74946	.88336	1.13203	863
738	.66278	.74881	.88511	1.12980	862
739	.66352	.74816	.88687	1.12757	861
740	.66425	.74751	.88862	1.12534	**860**
741	.66499	.74686	.89038	1.12312	859
742	.66572	.74620	.89214	1.12090	858
743	.66645	.74555	.89391	1.11868	857
744	.66718	.74489	.89567	1.11648	856
745	.66791	.74424	.89745	1.11427	855
746	.66864	.74358	.89922	1.11208	854
747	.66937	.74293	.90100	1.10988	853
748	.67010	.74227	.90278	1.10769	852
749	.67083	.74161	.90456	1.10551	851
750	.67156	.74095	.90635	1.10333	**850**
751	.67229	.74029	.90814	1.10116	849
752	.67301	.73963	.90993	1.09899	848
753	.67374	.73897	.91173	1.09682	847
754	.67446	.73831	.91353	1.09466	846
755	.67519	.73765	.91533	1.09250	845
756	.67591	.73698	.91713	1.09035	844
757	.67664	.73632	.91894	1.08821	843
758	.67736	.73565	.92076	1.08606	842
759	.67808	.73499	.92257	1.08393	841
760	.67880	.73432	.92439	1.08179	**840**
761	.67952	.73366	.92621	1.07967	839
762	.68024	.73299	.92804	1.07754	838
763	.68096	.73232	.92987	1.07542	837
764	.68168	.73165	.93170	1.07331	836
765	.68240	.73098	.93354	1.07120	835
766	.68311	.73031	.93537	1.06909	834
767	.68383	.72964	.93722	1.06699	833
768	.68455	.72897	.93906	1.06489	832
769	.68526	.72829	.94091	1.06280	831
770	.68598	.72762	.94276	1.06071	**830**
771	.68669	.72695	.94462	1.05863	829
772	.68740	.72627	.94648	1.05655	828
773	.68812	.72560	.94834	1.05447	827
774	.68883	.72492	.95021	1.05240	826
775	.68954	.72425	.95208	1.05033	825
776	.69025	.72357	.95395	1.04827	824
777	.69096	.72289	.95583	1.04621	823
778	.69167	.72221	.95771	1.04416	822
779	.69238	.72153	.95959	1.04211	821
780	.69309	.72085	.96148	1.04006	**820**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Mils	Sin	Cos	Tan	Cot	Mils
780	.69309	.72085	.96148	1.04006	**820**
781	.69379	.72017	.96337	1.03802	819
782	.69450	.71949	.96527	1.03598	818
783	.69521	.71881	.96717	1.03395	817
784	.69591	.71813	.96907	1.03192	816
785	.69662	.71744	.97097	1.02989	815
786	.69732	.71676	.97288	1.02787	814
787	.69802	.71607	.97479	1.02586	813
788	.69873	.71539	.97671	1.02384	812
789	.69943	.71470	.97863	1.02184	811
790	.70013	.71401	.98056	1.01983	**810**
791	.70083	.71333	.98248	1.01783	809
792	.70153	.71264	.98441	1.01583	808
793	.70223	.71195	.98635	1.01384	807
794	.70293	.71126	.98829	1.01185	806
795	.70363	.71057	.99023	1.00987	805
796	.70432	.70988	.99218	1.00788	804
797	.70502	.70919	.99413	1.00591	803
798	.70572	.70849	.99608	1.00393	802
799	.70641	.70780	.99804	1.00197	801
800	.70711	.70711	1.00000	1.00000	**800**
Mils	**Cos**	**Sin**	**Cot**	**Tan**	**Mils**

Degrees to Mils

Degrees	Mils	Degrees	Mils	Degrees	Mils
1	17.8	31	551.1	61	1084.4
2	35.6	32	568.9	62	1102.2
3	53.3	33	586.7	63	1120.0
4	71.1	34	604.4	64	1137.8
5	88.9	**35**	622.2	**65**	1155.6
6	106.7	36	640.0	66	1173.3
7	124.4	37	657.8	67	1191.1
8	142.2	38	675.6	68	1208.9
9	160.0	39	693.3	69	1226.7
10	177.8	**40**	711.1	**70**	1244.5
11	195.6	41	728.9	71	1262.2
12	213.3	42	746.7	72	1280.0
13	231.1	43	764.4	73	1297.8
14	248.9	44	782.2	74	1315.6
15	266.7	**45**	800.0	**75**	1333.3
16	284.4	46	817.8	76	1351.1
17	302.2	47	835.6	77	1368.9
18	320.0	48	853.3	78	1386.7
19	337.8	49	871.1	79	1404.5
20	355.6	**50**	888.9	**80**	1422.2
21	373.3	51	906.7	81	1440.0
22	391.1	52	924.4	82	1457.8
23	408.9	53	942.2	83	1475.6
24	426.7	54	960.0	84	1493.3
25	444.5	**55**	977.8	**85**	1511.1
26	462.2	56	995.6	86	1528.9
27	480.0	57	1013.3	87	1546.7
28	497.8	58	1031.1	88	1564.5
29	515.6	59	1048.9	89	1582.2
30	533.3	**60**	1066.7	**90**	1600.0

Minutes to Mils

Minutes	Mils	Minutes	Mils
1	0.3	31	9.2
2	0.6	32	9.5
3	0.9	33	9.8
4	1.2	34	10.1
5	1.5	**35**	10.4
6	1.8	36	10.7
7	2.1	37	11.0
8	2.4	38	11.3
9	2.7	39	11.6
10	3.0	**40**	11.9
11	3.3	41	12.1
12	3.6	42	12.4
13	3.9	43	12.7
14	4.1	44	13.0
15	4.4	**45**	13.3
16	4.7	46	13.6
17	5.0	47	13.9
18	5.3	48	14.2
19	5.6	49	14.5
20	5.9	**50**	14.8
21	6.2	51	15.1
22	6.5	52	15.4
23	6.8	53	15.7
24	7.1	54	16.0
25	7.4	**55**	16.3
26	7.7	56	16.6
27	8.0	57	16.9
28	8.3	58	17.2
29	8.6	59	17.5
30	8.9	**60**	17.8

Mils to Degrees and Minutes

Mils	Minutes	Mils	Degrees Minutes	Mils	Degrees Minutes	Mils	Degrees Minutes
1	3.375	10	0° 33′.75	100	5° 37′.50	1000	56° 15′.00
2	6.750	20	1° 07′.50	200	11° 15′.00	1100	61°52′.50
3	10.125	30	1° 41′.25	300	16° 52′.50	1200	67° 30′.00
4	13.500	40	2° 15′.00	400	22° 30′.00	1300	73° 07′.50
5	16.875	50	2° 48′.75	500	28° 07′.50	1400	78° 45′.00
6	20.250	60	3° 22′.50	600	33° 45′.00	1500	84° 22′.50
7	23.625	70	3° 56′.25	700	39° 22′.50	1600	90° 00′.00
8	27.000	80	4° 30′.00	800	45° 00′.00	1700	95° 37′.50
9	30.375	90	5° 03′.75	900	50° 37′.50	1800	101° 15′.00